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ABSTRACT

This Alberta curriculum guide, focusing on wildlife, defines competencies that: help students build daily living skills; investigate career options in logistics occupations; use technology in the logistics field effectively and efficiently; and prepare for entry into the workplace or related postsecondary programs. Section A provides information on Career and Technology Studies (CTS), such as program rationale and philosophy, general learner expectations, curriculum structure and levels of achievement, curriculum and assessment standards, and basic competencies reference guide. Section B presents strand rationale and philosophy and strand organization, including development model, levels, scope and sequence, and module descriptions. Section C addresses planning for instruction for CTS and wildlife. Sections D-F contain 17 module curriculum and assessment standards for introductory, intermediate, and advanced levels. Each module within a level contains these components: level, theme, prerequisite, module description, module parameters, and curriculum and assessment standards. The latter are found in two charts: one correlating module learner expectations, assessment criteria and conditions, and suggested emphasis and the other concepts, specific learner expectations, and teacher notes. Sections G-J provide background information and strategies for assessing student achievement and assessment tools; an overview of linkages and transitions of CTS modules with organizations; lists of learning resources; and background information, strategies, a template for developing student learning guides, and several sample student learning guides. (YLB)

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CAREER & TECHNOLOGY STUDIES

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GUIDE TO STANDARDS AND IMPLEMENTATION

1997

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This document supersedes all previous versions of the *Career & Technology Studies Guide to Standards and Implementation*.

This publication is a support document. The advice and direction offered is suggestive except where it duplicates the Program of Studies. The Program of Studies—a prescriptive description of the expectations of student learning, focusing on what students are expected to know and be able to do—is issued under the authority of the Minister of Education pursuant to section 25(1) of the *School Act*, Statutes of Alberta, 1988, Chapter S-3.1 as amended, and is required for implementation. Within this document, the Program of Studies is shaded so that the reader may readily identify all prescriptive statements or segments.

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CAREER AND TECHNOLOGY STUDIES

A. PROGRAM RATIONALE AND PHILOSOPHY

Through Career and Technology Studies (CTS), secondary education in Alberta is responding to the many challenges of modern society, helping young people develop daily living skills and nurturing a flexible, well-qualified work force.

In Canada's information society, characterized by rapid change in the social and economic environment, students must be confident in their ability to respond to change and successfully meet the challenges they face in their own personal and work lives. In particular, they make decisions about what they will do when they finish high school. Many students will enter the work force, others will continue their education. All students face the challenges of growing independence and responsibility, and of entering post-secondary programs and/or the highly competitive workplace.

Secondary schools also face challenges. They must deliver, on a consistent basis, high quality, cost-effective programs that students, parents and the community find credible and relevant.

CTS helps schools and students meet these challenges. Schools can respond more efficiently and effectively to student and community needs and expectations by taking advantage of the opportunities in the CTS curriculum to design courses and access school, community and distance learning resources. Students can develop the confidence they need as they move into adult roles by assuming increased responsibility for their learning; cultivating their individual talents, interests and abilities; and by defining and acting on their goals.

As an important component of education in Alberta secondary schools, CTS promotes student achievement by setting clear expectations and recognizing student success. Students in CTS develop competencies—the knowledge, skills and attitudes they are expected to demonstrate, that is, what they know and what they are able to do.

Acquired competencies can be applied now and in the future as students make a smooth transition into adult roles in the family, community, workplace and/or further education. To facilitate this transition, clearly stated expectations and standards have been defined in cooperation with teachers, business and industry representatives and post-secondary educators.

CTS offers all students important learning opportunities. Regardless of the particular area of study chosen, *students* in CTS *will*:

- develop skills that can be applied in their daily lives, now and in the future
- refine career-planning skills
- develop technology-related skills
- enhance employability skills
- apply and reinforce learnings developed in other subject areas.

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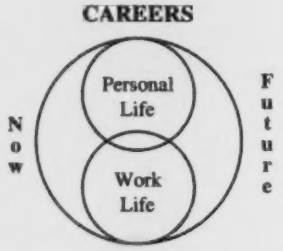
In CTS, students build skills they can apply in their everyday lives. For example, in the CTS program, particularly at the introductory levels, students have the opportunity to improve their ability to make sound consumer decisions and to appreciate environmental and safety precautions.

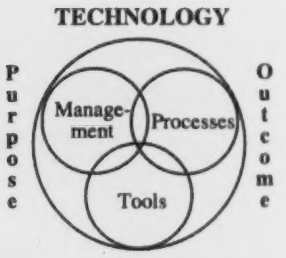


A career encompasses more than activities just related to a person's job or occupation; it involves one's personal life in both local and global contexts; e.g., as a family member, a friend, a community volunteer, a citizen of the world.

The integration of careers throughout the CTS program helps students to make effective career decisions and to target their efforts. CTS students will have the opportunity to expand their knowledge about careers, occupations and job opportunities, as well as the education and/or training requirements involved. Also, students come to recognize the need for lifelong learning.

Students in CTS have the opportunity to use and apply technology and systems effectively and efficiently. This involves:

- a decision regarding which processes and procedures best suit the task at hand
- the appropriate selection and skilled use of the tools and/or resources available
- an assessment of and management of the impact the use of the technology may have on themselves, on others and on the environment.



Integrated throughout CTS are employability skills, those basic competencies that help students develop their personal management and social skills. Personal management skills are improved as students take increased responsibility for their learning, design innovative solutions to problems and challenges, and manage resources effectively and efficiently. Social skills improve through learning experiences that require students to work effectively with others, demonstrate teamwork and leadership, and maintain high standards in safety and accountability.

As well as honing employability skills, CTS reinforces and enhances learnings developed in core and other complementary courses. The curriculum emphasizes, as appropriate, the effective application of communication and numeracy skills.

In addition to the common outcomes described above, students focusing on a particular area of study will develop career-specific competencies that support entry into the workplace and/or related post-secondary programs. Career-specific competencies can involve understanding and applying appropriate terminology, processes and technologies related to a specific career, occupation or job.

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GENERAL LEARNER EXPECTATIONS

General learner expectations describe the basic competencies integrated throughout the CTS program.

Within an applied context relevant to personal goals, aptitudes and abilities; *the student* in CTS *will*:

- demonstrate the basic knowledge, skills and attitudes necessary for achievement and fulfillment in personal life
- develop an action plan that relates personal interests, abilities and aptitudes to career opportunities and requirements
- use technology effectively to link and apply appropriate tools, management and processes to produce a desired outcome
- develop basic competencies (employability skills), by:
  - selecting relevant, goal-related activities, ranking them in order of importance, allocating necessary time, and preparing and following schedules (managing learning)
  - linking theory and practice, using resources, tools, technology and processes responsibly and efficiently (managing resources)
  - applying effective and innovative decision-making and problem-solving strategies in the design, production, marketing and consumption of goods and services (problem solving and innovation)
  - demonstrating appropriate written and verbal skills, such as composition, summarization and presentation (communicating effectively)
  - participating as a team member by working cooperatively with others and contributing to the group with ideas, suggestions and effort (working with others)
  - maintaining high standards of ethics, diligence, attendance and punctuality, following safe procedures consistently, and recognizing and eliminating potential hazards (demonstrating responsibility).

PROGRAM ORGANIZATION

CURRICULUM STRUCTURE

Career and Technology Studies is organized into **strands** and **modules**.

Strands in CTS define competencies that help students:

- build daily living skills
- investigate career options
- use technology (managing, processes, tools) effectively and efficiently
- prepare for entry into the workplace and/or related post-secondary programs.

In general, strands relate to selected industry sectors offering positive occupational opportunities for students. Some occupational opportunities require further education after high school, and some allow direct entry into the workplace. Industry sectors encompass goods-producing industries, such as agriculture, manufacturing and construction; and service-producing industries, such as business, health, finance and insurance.

Modules are the building blocks for each strand. They define what a student is expected to know and be able to do (exit-level *competencies*). Modules also specify prerequisites. Recommendations for module parameters, such as instructional qualifications, facilities and equipment can be found in the guides to implementation.

The competencies a student must demonstrate to achieve success in a module are defined through the *module learner expectations.* Senior high school students who can demonstrate the module learner expectations; i.e., who have the designated competencies, will qualify for one credit toward their high school diploma.

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Specific learner expectations provide a more detailed framework for instruction. Within the context of module learner expectations, the specific learner expectations further define the knowledge, skills and attitudes the student should acquire.

The following chart shows the 22 strands that comprise the CTS program and the number of modules available in each strand.

Strand	No. of Modules
1. Agriculture	33
2. Career Transitions	28
3. Communication Technology	33
4. Community Health	31
5. Construction Technologies	46
6. Cosmetology	58
7. Design Studies	31
8. Electro-Technologies	37
9. Energy and Mines	26
10. Enterprise and Innovation	8
11. Fabrication Studies	41
12. Fashion Studies	29
13. Financial Management	14
14. Foods	37
15. Forestry	21
16. Information Processing	48
17. Legal Studies	13
18. Logistics	12
19. Management and Marketing	19
20. Mechanics	54
21. Tourism Studies	24
22. Wildlife	17

LEVELS OF ACHIEVEMENT

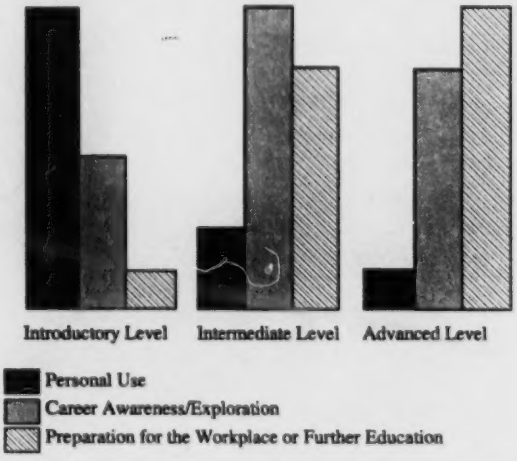
Modules are organized into three levels of achievement: **introductory**, **intermediate** and **advanced**. As students progress through the levels, they will be expected to meet higher standards and demonstrate an increased degree of competence, in both the general learner expectations and the module learner expectations.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are for students who have no previous experience in the strand.

Intermediate level modules build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Advanced level modules refine expertise and help prepare students for entry into the workplace or a related post-secondary program.

The graph below illustrates the relative emphasis on the aspects of career planning at each of the levels.



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CURRICULUM AND ASSESSMENT STANDARDS

Curriculum standards in CTS define what students must know and be able to do. Curriculum standards are expressed through general learner expectations for CTS, and through module and specific learner expectations for each strand.

Assessment standards define how student performance is to be judged. In CTS, each assessment standard defines the conditions and criteria to be used for assessing the competencies of each module learner expectation. To receive credit for a module, students must demonstrate competency at the level specified by the conditions and criteria defined for each module learner expectation.

Students throughout the province receive a fair and reliable assessment as they use the standards to guide their efforts, thus ensuring they participate more effectively and successfully in the learning and assessment process. Standards at advanced levels are, as much as possible, linked to workplace and post-secondary entry-level requirements.

TYPES OF COMPETENCIES

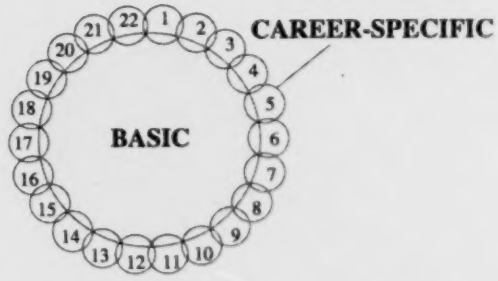
Two types of competencies are defined within the CTS program: basic and career-specific.

Basic competencies are generic to any career area and are developed within each module. Basic competencies include:

- personal management; e.g., managing learning, being innovative, ethics, managing resources
- social; e.g., communication, teamwork, leadership and service, demonstrating responsibility (safety and accountability).

Career-specific competencies relate to a particular strand. These competencies build daily living skills at the introductory levels and support the smooth transition to the workplace and/or post-secondary programs at the intermediate and advanced levels.

The model below shows the relationship of the two types of competencies within the 22 strands of the CTS program.



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BASIC COMPETENCIES REFERENCE GUIDE

The chart below outlines basic competencies that students endeavour to develop and enhance in each of the CTS strands and modules. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each module. In general, there is a progression of task complexity and student initiative as outlined in the Developmental Framework★. **As students progress through Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages.** Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using in reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- maintaining a student portfolio.

Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Managing Learning			
☐ comes to class prepared for learning	☐ →	☐ →	☐ →
☐ follows basic instructions, as directed	☐ follows instructions, with limited direction	☐ follows detailed instructions on an independent basis	☐ →
	☐ sets goals and establishes steps to achieve them, with direction	☐ sets clear goals and establishes steps to achieve them	☐ demonstrates self-direction in learning, goal setting and goal achievement
☐ acquires specialized knowledge, skills and attitudes	☐ applies specialized knowledge, skills and attitudes in practical situations	☐ transfers and applies specialized knowledge, skills and attitudes in a variety of situations	☐ transfers and applies learning in new situations; demonstrates commitment to lifelong learning
☐ identifies criteria for evaluating choices and making decisions	☐ identifies and applies a range of effective strategies for solving problems and making decisions	☐ uses a range of critical thinking skills to evaluate situations, solve problems and make decisions	☐ thinks critically and acts logically to evaluate situations, solve problems and make decisions
☐ uses a variety of learning strategies	☐ explores and uses a variety of learning strategies, with limited direction	☐ selects and uses effective learning strategies	☐ →
		☐ cooperates with others in the effective use of learning strategies	☐ provides leadership in the effective use of learning strategies
Managing Resources			
☐ adheres to established timelines; uses time/schedules/planners effectively	☐ creates and adheres to timelines, with limited direction; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines on an independent basis; prioritizes task; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines; uses time/schedules/planners effectively; prioritizes tasks on a consistent basis
☐ uses information (material and human resources), as directed	☐ accesses and uses a range of relevant information (material and human resources), with limited direction	☐ accesses a range of information (material and human resources), and recognizes when additional resources are required	☐ uses a wide range of information (material and human resources) in order to support and enhance the basic requirement
☐ uses technology (facilities, equipment, supplies), as directed, to perform a task or provide a service	☐ uses technology (facilities, equipment, supplies), as appropriate, to perform a task or provide a service, with minimal assistance and supervision	☐ selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis	☐ recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies)
☐ maintains, stores and/or disposes of equipment and materials, as directed	☐ maintains, stores and/or disposes of equipment and materials, with limited assistance	☐ maintains, stores and/or disposes of equipment and materials on an independent basis	☐ demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation			
☐ participates in problem solving as a process	☐ identifies the problem and selects an appropriate problem-solving approach, responding appropriately to specified goals and constraints	☐ thinks critically and acts logically in the context of problem solving	☐ identifies and resolves problems efficiently and effectively
☐ learns a range of problem-solving skills and approaches			
☐ practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ applies problem-solving skills to a directed or a self-directed activity, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ transfers problem-solving skills to real-life situations, by generating new possibilities ☐ prepares implementation plans ☐ recognizes risks	☐ identifies and suggests new ideas to get the job done creatively, by: – combining ideas or information in new ways – making connections among seemingly unrelated ideas – seeking out opportunities in an active manner

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Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Communicating Effectively			
☐ uses communication skills; e.g., reading, writing, illustrating, speaking	☐ communicates thoughts, feelings and ideas to justify or challenge a position, using written, oral and/or visual means	☐ prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned arguments	☐ negotiates effectively, by working toward an agreement that may involve exchanging specific resources or resolving divergent interests
☐ uses language in appropriate context	☐ uses technical language appropriately	☐ encourages, persuades, convinces or otherwise motivates individuals	☐ negotiates and works toward a consensus
☐ listens to understand and learn	☐ listens and responds to understand and learn	☐ listens and responds to understand, learn and teach	☐ listens and responds to understand, learn, teach and evaluate
☐ demonstrates positive interpersonal skills in selected contexts	☐ demonstrates positive interpersonal skills in many contexts	☐ demonstrates positive interpersonal skills in most contexts	☐ promotes positive interpersonal skills among others
Working with Others			
☐ fulfills responsibility in a group project	☐ →	☐ seeks a team approach, as appropriate, based on group needs and benefits; e.g., idea potential, variety of strengths, sharing of workload	☐ leads, where appropriate, mobilizing the group for high performance
☐ works collaboratively in structured situations with peer members	☐ cooperates to achieve group results	☐ works in a team or group: – encourages and supports team members – helps others in a positive manner – provides leadership/ followership as required – negotiates and works toward consensus as required	☐ understands and works within the context of the group
☐ acknowledges the opinions and contributions of others in the group	☐ maintains a balance between speaking, listening and responding in group discussions ☐ respects the feelings and views of others		☐ prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility			
Attendance			
☐ demonstrates responsibility in attendance, punctuality and task completion	☐ →	☐ →	☐ →
Safety			
☐ follows personal and environmental health and safety procedures	☐ recognizes and follows personal and environmental health and safety procedures	☐ establishes and follows personal and environmental health and safety procedures	☐ transfers and applies personal and environmental health and safety procedures to a variety of environments and situations
☐ identifies immediate hazards and their impact on self, others and the environment	☐ identifies immediate and potential hazards and their impact on self, others and the environment	☐ →	☐ →
☐ follows appropriate/emergency response procedures	☐ →	☐ →	☐ →
			☐ demonstrates accountability for actions taken to address immediate and potential hazards
Ethics			
☐ makes personal judgements about whether or not certain behaviours/actions are right or wrong	☐ assesses how personal judgements affect other peer members and/or family; e.g., home and school	☐ assesses the implications of personal/group actions within the broader community; e.g., workplace	☐ analyzes the implications of personal/group actions within the global context ☐ states and defends a personal code of ethics as required

★**Developmental Framework**			
• *Simple task* • *Structured environment* • *Directed learning*	• *Task with limited variables* • *Less structured environment* • *Limited direction*	• *Task with multiple variables* • *Flexible environment* • *Self-directed learning, seeking assistance as required*	• *Complex task* • *Open environment* • *Self-directed/self-motivated*

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WILDLIFE

B. STRAND RATIONALE AND PHILOSOPHY

Wildlife is an important part of Canada's heritage. Canada is one of the few places in the world that still contains large natural ecosystems. Natural and wilderness areas of Canada contribute greatly to our quality of life and functioning of the global ecosystem.

But the future of Canada's wildlife cannot be taken for granted. Wild populations and ecosystems have become increasingly vulnerable to human population growth and technological development. Changes to ecosystems, brought about by phenomena such as global warming and the long-range transport of air pollutants, threaten both wildlife and people.

Recently, public concern for wildlife has expanded to embrace any living thing that is part of the natural ecosystem. Discussion of wildlife in this curriculum involves all wild organisms and their habitats—including wild plants, invertebrates and micro-organisms, as well as fishes, amphibians, reptiles, and the birds and mammals traditionally regarded as wildlife.*

Wildlife, a strand in Career and Technology Studies, will provide opportunities for students to view themselves as part of the global ecosystem. Students will be encouraged to share information and beliefs regarding environmental sustainability, and recognize the need to make informed choices that limit demands placed on ecosystems to sustainable levels.

Students in Wildlife will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. Within the philosophy of Career and Technology Studies, *students* in Wildlife *will*:

- develop greater awareness of the economic, environmental and social significance of wildlife in Alberta and the rest of the world

* Wildlife Ministers' Council of Canada. *A Wildlife Policy for Canada*. Ottawa, ON: Environment Canada, 1990.

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- describe the characteristics of Alberta's wildlife, and identify trends in wildlife habitats and populations

- describe technologies and research programs designed to preserve biological diversity and enhance the sustainable, ecologically sound management of species and ecosystems

- translate sustainable development and conservation goals into viable plans for managing consumptive and nonconsumptive use of wildlife

- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers involving Alberta's wildlife.

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STRAND ORGANIZATION

DEVELOPMENT MODEL

The development model depicts three dimensions that provide a basis for selecting and organizing content within the Wildlife strand.

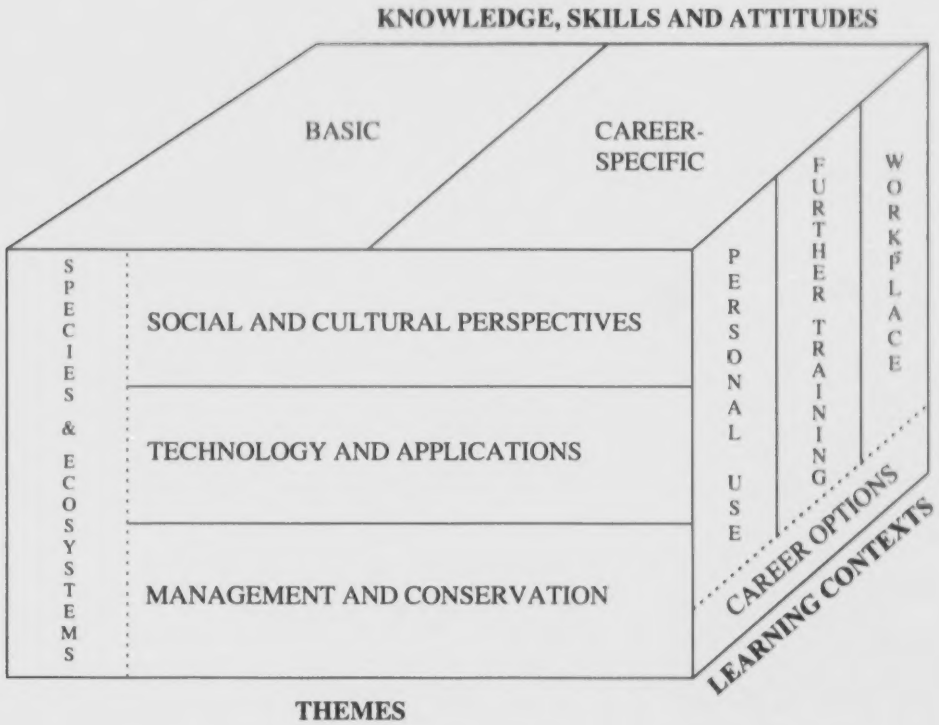
- The KNOWLEDGE, SKILLS AND ATTITUDES, represented on the upper face of the model, provide structure for the course and focus attention on learning goals common to all CTS courses.

- The LEARNING CONTEXTS, represented on the right face of the model, foster the development of knowledge and behaviours that will enable students to meet the demands of daily living, further training and the workplace.

- The THEMES provide situational and concrete learning experiences that support the development of knowledge, skills and attitudes relevant to each of the learning contexts. Each theme focuses attention on the sustainable use of species and ecosystems. Blended together, the themes enable students to understand how it is possible to fulfill social, cultural, aesthetic and economic goals through resource development, while embracing a conservation ethic so as to maintain essential ecological processes, genetic diversity and an adequate resource base for future generations.

LEVELS

The Wildlife curriculum is organized into three levels of learning: introductory, intermediate and advanced.



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Introductory level modules develop knowledge, skills and attitudes necessary for functioning in the natural environment. Students examine their relationship with the environment, observe trends in wildlife populations and habitats, and consider the impacts of various pursuits on local species and ecosystems.

Intermediate and advanced level modules develop more specialized knowledge and skills regarding wildlife species, sustainable ecosystems and management practices. Students consider the social, economic and environmental significance of wildlife and gather information regarding both intended and unintended outcomes of particular management strategies.

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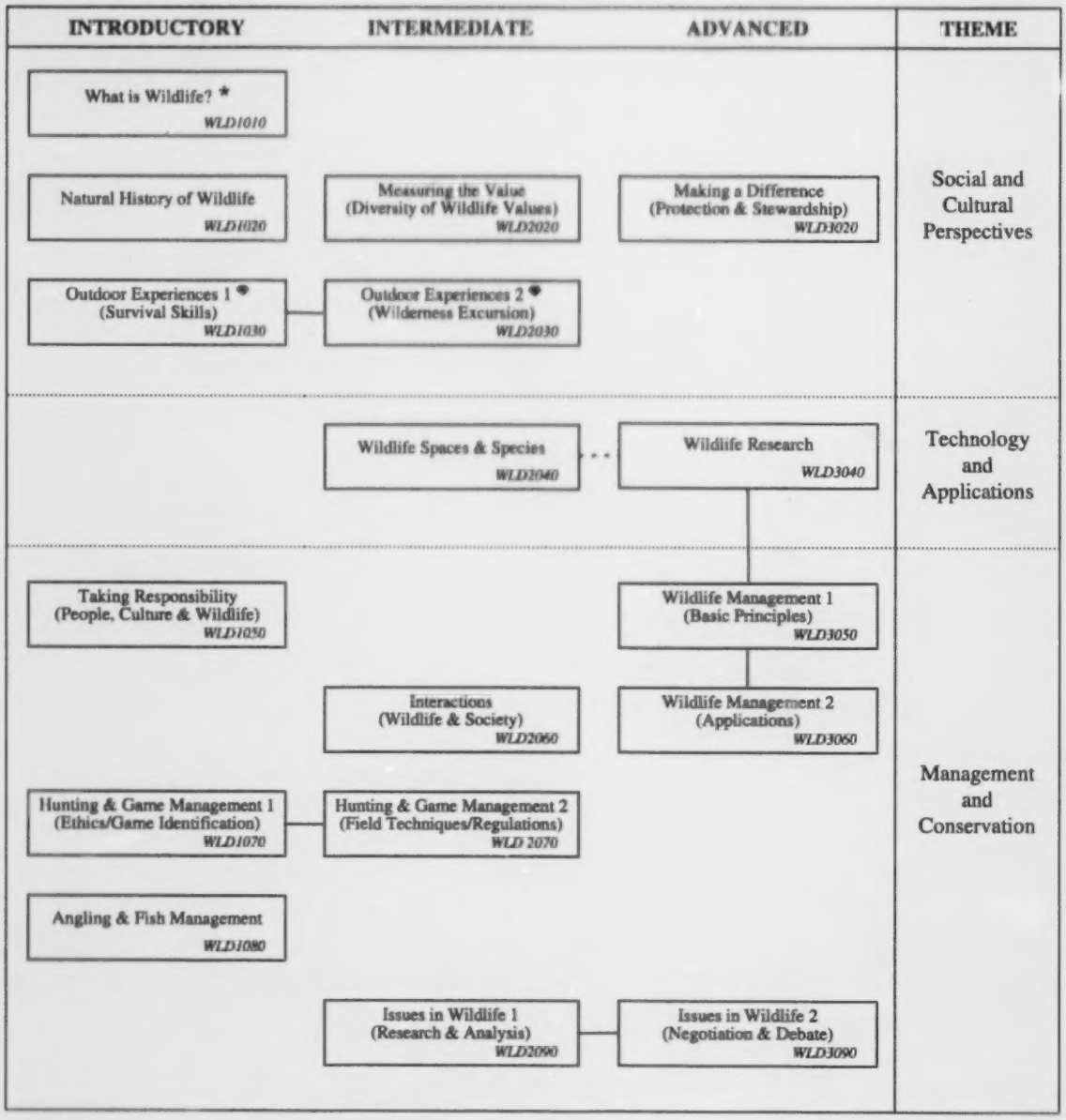

——— Prerequisite . . . . Recommended sequence

* Module provides a strong foundation for further learning in this strand.
◆ Refer to specific modules for additional prerequisites.

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MODULE DESCRIPTIONS

Module WLD1010: What is Wildlife?
Students demonstrate knowledge of wildlife and ecosystems, and examine the need to manage and conserve wildlife.

Module WLD1020: Natural History of Wildlife
Students investigate the diversity of Canadian wildlife in terms of structure, behaviour and habitat, and compare Alberta wildlife with wildlife in other parts of the world.

Module WLD1030: Outdoor Experiences 1 (Survival Skills)
Students demonstrate the basic skills required for responsible participation in a range of outdoor activities.

Module WLD1050: Taking Responsibility (People, Culture & Wildlife)
Students explain the significance of wildlife in society, examine relationships among humans and wildlife, and research potential career opportunities in wildlife-related fields.

Module WLD1070: Hunting & Game Management 1 (Ethics/Game Identification)
Students explain the role of regulated hunting in game management, identify Alberta's game animals, and demonstrate knowledge and skills that ensure safe and comfortable experiences in the outdoors.

Module WLD1080: Angling & Fish Management
Students explain the role of recreational fishing in the management and conservation of fish resources, and demonstrate knowledge of the responsible practices required for fishing or related outdoor activities.

Module WLD2020: Measuring the Value (Diversity of Wildlife Values)
Students assess the significance of wildlife in society, analyze relationships between humans and wildlife, and research career opportunities in wildlife-related fields.

Module WLD2030: Outdoor Experiences 2 (Wilderness Excursion)
Students plan, prepare for and conduct an extended outdoor wilderness trip.

Module WLD2040: Wildlife Spaces & Species
Students present the results of research on wildlife spaces and species in Alberta and other parts of the world, and compare different strategies used in wildlife management.

Module WLD2060: Interactions (Wildlife & Society)
Students explain how human populations interact with wildlife, and describe management strategies that enable wildlife and society to coexist.

Module WLD2070: Hunting & Game Management 2 (Field Techniques/Regulations)
Students demonstrate knowledge of the basic parts and safe handling of bows, arrows and firearms, and explain the legal responsibilities of the sports person.

Module WLD2090: Issues in Wildlife 1 (Research & Analysis)
Students examine a range of Canadian and global wildlife issues, and present the results of research on one or more issues concerning wildlife in Canada.

Module WLD3020: Making a Difference (Protection & Stewardship)
Students explain how human populations and wildlife affect each other, describe management strategies that enable humans and wildlife to coexist, and demonstrate individual and shared actions that foster environmental stewardship.

Module WLD3040: Wildlife Research
Students explain applications of the wildlife research process, and conduct experimental research on a wildlife space or species.

Module WLD3050: Wildlife Management 1 (Basic Principles)
Students describe the functions and processes of wildlife management, and identify issues that may affect the development of a wildlife management plan.

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Module WLD3060: Wildlife Management 2 (Applications)
Students develop and present a plan for managing a wildlife space or species.

Module WLD3090: Issues in Wildlife 2 (Negotiation & Debate)
Students examine the complexity of wildlife issues affecting Alberta and the rest of the world, and demonstrate individual and shared actions that foster sustainable management of wildlife.

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SECTION C: PLANNING FOR INSTRUCTION

CTS provides increased opportunity for junior and senior high schools to design courses based on the needs and interests of their students and the circumstances within the school and community. Some strands may be appropriately introduced at the junior high school level. Other strands are more appropriately introduced at the senior high school level or to Grade 9 students. Refer to this section for recommendations regarding the Wildlife strand, or the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* for a summary of the recommended grade levels for each strand.

PLANNING FOR CTS

Defining Courses

Schools determine which strands and modules will be offered in a particular school, and will combine modules into courses.

Each module was designed for approximately 25 hours of instruction. However, this time frame is only a guideline to facilitate planning. The CTS curricula are competency based, and the student may take more or less time to gain the designated competencies within each module.

A course will usually consist of modules primarily from the same strand but, where appropriate, may include modules from two or more strands. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 4) for more information on course names and course codes.

Module selection and sequencing should consider:

- prerequisite(s)
- supporting module(s) (other CTS modules that may enhance the learning opportunity if offered with the module)
- module parameters
  - instructional qualifications, if specialized
  - equipment and facility requirements, if specialized.

The module parameters are defined for each module in Sections D, E and F of this Guide.

Degree of Flexibility

The CTS program, while designed using the modular structure to facilitate flexible timetabling and instructional delivery, does not mandate the degree of flexibility a school or teacher will offer. The teacher and school will determine the degree of flexibility available to the student. Within the instructional plan established by the school, the student may:

- be given the opportunity to progress at a rate that is personally challenging
- have increased opportunity to select modules that develop competencies he or she finds most relevant.

Integrating Basic Competencies

The basic competencies relate to managing learning and resources, problem solving and innovation, communicating effectively, working with others and demonstrating responsibility are developed throughout the CTS program, and are within each module.

Assessment of student achievement on the basic competencies is integrated throughout the other module learner expectations. Refer to Section G (Assessment Tools) of this Guide for the description of student behaviours expected at each of the four developmental stages defined for the basic competencies.

Assessment of basic competencies could include input and reflection involving the student, teacher(s), peers and others. Description of the observed behaviour could be provided through a competency profile for the module. Positive, ongoing interaction between the student and teacher will support motivation for student growth and improvement.

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Assessing Student Achievement

Assessing student competency is a process of gathering information by way of observations of process, product and student interaction.

Where appropriate, assessment tools have been defined to assist the teacher and student in the assessment. Refer to Section G (Assessment Tools) of this Guide for copies of the various tools (worksheets, checklists, sample questions, etc.).

A suggested emphasis for each module learner expectation has also been established. The suggested emphasis provides a guideline to help teachers determine time allocation and/or the appropriate emphasis for each MLE and student grade.

Recognizing Student Achievement

At the high school level, successful demonstration of the exit-level competencies in a module qualifies the student for one credit. Refer to Section A of this Guide for more detailed information about how curriculum and assessment standards are defined in CTS. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 12) for more information on how student achievement can be recognized and reported at the school and provincial levels.

Portfolios

When planning for instruction and assessment, consider a portfolio as an excellent tool to provide evidence of a student's effort, progress and achievement. Portfolios will aid students in identifying skills and interest. They also provide the receiving teacher, employer and/or post-secondary institution proof of a student's accomplishments. The make-up and evaluation of the portfolio should be a collaborative agreement between the student and teacher.

Resources

A comprehensive resource base, including print, software and audio-visual, has been identified to support CTS strands. It is intended that these resources will form the basis of a resource centre, encouraging teachers and students to access a wide selection of resources and other information sources throughout the learning process. Unless otherwise noted, these resources are considered to be suitable for both junior and senior high school students.

Authorized resources may be obtained from the Learning Resources Distributing Centre or directly from the publisher or distributor. Refer to Section I (Learning Resource Guide) of this Guide for the complete resource list including curriculum correlations and resource annotations. Additional sources refer to noncommercial or government agencies that offer resources that may be of assistance in this strand.

Student Learning Guides

In addition to the resources, sample Student Learning Guides are available (refer to Section J of this Guide). These samples, designed for individual student or small group use, provide an instructional plan for selected modules and include the following components:

- Why take this module?
- What are the entry-level competencies?
- What are the exit-level competencies?
- What resources may be accessed?
- What assignments/activities must be completed?
- What are the timelines?
- How will the final mark be calculated?

Sample Student Learning Guides have been developed for the following modules in Wildlife:

- Natural History of Alberta Wildlife
- Wildlife Spaces & Species
- Wildlife Management 1.

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PLANNING FOR WILDLIFE

The following suggestions are provided to assist teachers and school and school system administrators as they plan to deliver modules from the Wildlife strand.

Selecting Modules

The scope and sequence chart in Section B provides an overview of the Wildlife modules, indicating prerequisites and theme areas. Brief descriptions of the modules follow the scope and sequence chart in Section B.

Course planning should take into consideration module sequences that link with both physical and human resources present in the school and community. Although not required, it is recommended that WLD1010: What is Wildlife? be a prerequisite/corequisite to all modules in the Wildlife strand.

Wildlife in Junior High

The introductory level modules may be offered at the junior high level. As each school and community will vary in terms of available resources, it is important to consider potential education partners prior to selecting module sequences.

The number of modules will vary according to time available throughout Grades 7, 8 and 9. A module do not have to be completed in a given school year at the junior high level. Modules may be combined into courses and offered within a school year or over a span of a few years.

Two sample courses based on introductory level modules are outlined as follows.

Sample A: 50 hours of instruction

COURSE EMPHASIS
Introduction to Wildlife
MODULES
What is Wildlife? (WLD1010) Natural History of Wildlife (WLD1020)
RATIONALE/KEY LEARNINGS
Students develop an understanding of wildlife and ecosystems, examine the need to manage and conserve wildlife, and conduct research on the structure, behaviour and habitat of wildlife species present in Alberta. The course complements the junior high core Science program and complementary Environmental and Outdoor Education program, and can be linked with other CTS strands including Agriculture, Forestry and Tourism Studies.

Sample B: 75 hours of instruction

COURSE EMPHASIS
Personal/Recreational Significance
MODULES
What is Wildlife? (WLD1010) Outdoor Experiences 1 (WLD1030) Taking Responsibility (WLD1050)
RATIONALE/KEY LEARNINGS
Students develop an understanding of wildlife and ecosystems, investigate the significance of wildlife in society, and develop skills required for responsible participation in a range of outdoor activities that have minimal impact on the environment. The course complements the junior high core Science program and complementary Environmental and Outdoor Education program, and can be linked with other CTS strands including Agriculture, Community Health, Forestry and Tourism Studies.

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Where appropriate, junior high school students may also take intermediate level modules, particularly in the Technology and Applications theme.

Wildlife in Senior High

All introductory, intermediate and advanced level modules may be offered to senior high students. Three sample courses, based on intermediate and advanced level modules and designed to be delivered to senior high school students, are outlined below.

Sample C: 75 hours of instruction

COURSE EMPHASIS
Consumptive Use (no previous experience)
MODULES
Measuring the Value (WLD2020) Hunting & Game Management 1 (WLD1070) Hunting & Game Management 2 (WLD2070)
RATIONALE/KEY LEARNINGS
Students develop an appreciation of the significance of wildlife in society, examine the role of regulated hunting in game management, identify Alberta's game animals, and develop an understanding of safe hunting practices and legal responsibilities of the hunter. This course can be linked with other CTS strands including Agriculture, Career Transitions, Community Health, Forestry and Tourism Studies.

Sample D: 100 hours of instruction

COURSE EMPHASIS
Recreation and Tourism (assuming junior high background)
MODULES
Interactions (WLD2060) Outdoor Experiences 1 (WLD1030) Outdoor Experiences 2 (WLD2030) Making a Difference (WLD3020)
RATIONALE/KEY LEARNINGS
Students consider ways in which human population growth and land use affect wildlife, develop plans for and conduct an extended outdoor wilderness trip having minimal environmental impact, and demonstrate individual and shared actions that foster environmental stewardship. This course can be linked with other CTS strands including Agriculture, Career Transitions, Community Health, Forestry and Tourism Studies.

Sample E: 125 hours of instruction

COURSE EMPHASIS
Wildlife Conservation and Management (assuming junior high background)
MODULES
Wildlife Spaces and Species (WLD2040) Wildlife Research (WLD3040) Wildlife Management 1 (WLD3050) Wildlife Management 2 (WLD3060) Issues in Wildlife 2 (WLD3090)
RATIONALE/KEY LEARNINGS
Students compare different strategies used to manage wildlife, conduct experimental research on a wildlife space or species, develop and present plans for managing a wildlife space or species, and examine the complexity of wildlife issues in Alberta and the rest of the world. This course can be linked with other CTS strands including Agriculture, Career Transitions, Legal Studies, Forestry and Tourism Studies.

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Modules could also be grouped into comprehensive courses that develop competencies relevant to career opportunities within a specific industry.

Organizing for Learning

A "learn by doing" approach is recommended for the Wildlife strand. Essentially, the teacher's role becomes that of guide and partner in the learning process. The "learn by doing" approach requires the teacher to be facilitator and coach, rather than subject-based expert, as students actively participate in learning by doing and discovering.

Small group instruction is a good way to foster learning by doing and discovering. Small groups enable students to be active participants in learning, and develop independent and responsible learning habits. As students work in small group situations they will share information, solve problems, develop consensus and help each other learn content and processes.

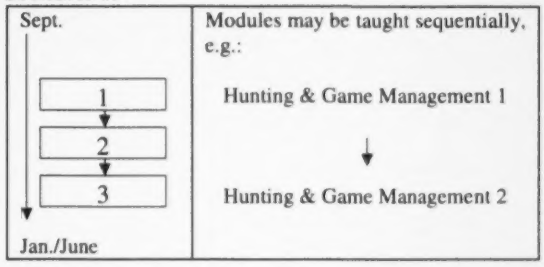
The community has a key role in education and can be an effective partner in the learning process. The use of community members and resources should be integrated into course planning. Business, industry, post-secondary and government agencies offer a wide range of services and resources, as do local clubs, service groups and institutions. When planning for the use of community resources, teachers should ensure that related presentations and/or activities:

- are consistent with student knowledge and skill levels
- demonstrate sound pedagogy
- are exemplary of approved health and safety standards
- provide a balanced approach to curriculum topics and related issues.

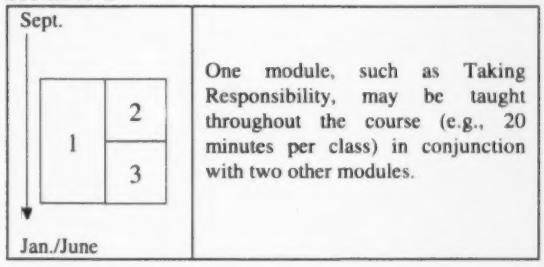
Before selecting modules, teachers should check the module parameters outlined in each module (see Sections D, E and F of this Guide).

Modules can be delivered sequentially, concurrently or combined. For example, although the modules from the Technology and Applications theme are sequential, they can be combined with modules from the Social and Cultural Perspectives theme or the Management and Conservation theme.

Scenario A

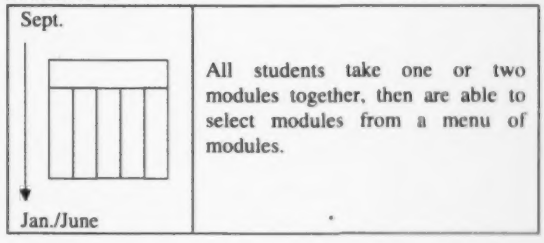


Scenario B

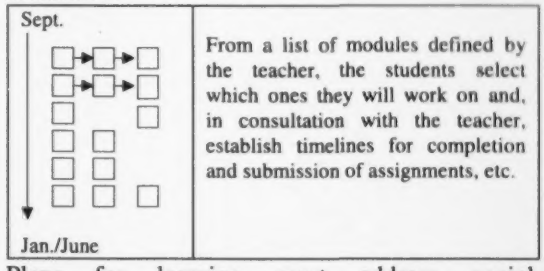

Sept.
1
2
3
Jan./June
One module, such as Taking Responsibility, may be taught throughout the course (e.g., 20 minutes per class) in conjunction with two other modules.

Teachers can also allow students to progress at a rate that is personally challenging; e.g.:

Scenario C



Scenario D


Sept.
Jan./June
From a list of modules defined by the teacher, the students select which ones they will work on and, in consultation with the teacher, establish timelines for completion and submission of assignments, etc.

Plans for learning must address social, environmental and economic perspectives related

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to the sustainable management of species and ecosystems and provide opportunities for students to become involved in learning experiences that reflect a broad understanding of wildlife-related issues. Presentations of course content that reflect a singular or narrow view of social, economic or environmental concerns are not consistent with learner expectations and must be avoided.

As in all CTS strands, students will identify, explore and prepare for future career opportunities. It is recommended that course planning include the integration of relevant career investigations throughout each module, rather than as a singular or isolated study. Career profiles, interviews and job shadowing will acquaint students with the many technical and professional careers associated with Alberta's wildlife.

Instructional Qualifications

Responsibility for instructional planning and assessment of courses in Wildlife will be assumed by Alberta certified teachers. A background in science and/or natural resource management will be an asset to those who provide instruction in Wildlife modules, particularly at the intermediate and advanced levels. Teachers may find it desirable to access sources of instructional support available from relevant government agencies (e.g., Alberta Environmental Protection, Parks Canada), professional associations and consultants, and related industry (e.g., agriculture, forestry, tourism).

To ensure compliance with safety and industry standards, some modules require that components of instruction be provided by person(s) having additional credentials granted by industry, government or community organizations. Wildlife modules requiring additional instructor qualifications are identified in the chart below.

MODULE	ADDITIONAL INSTRUCTOR QUALIFICATIONS	
	Required	**Recommended**
WLD1030: Outdoor Experiences 1	Standard Level First Aid Certificate	First Aid in the Wilderness Certificate
WLD1070: Hunting & Game Management 1	Registered Alberta Conservation and Hunter Education Program Instructor Standard Level First Aid Certificate	
WLD1080: Angling & Fish Management	Registered Alberta Fishing Education Program Instructor Standard Level First Aid Certificate	
WLD2030: Outdoor Experiences 2	Standard Level First Aid Certificate	First Aid in the Wilderness Certificate
WLD2070: Hunting & Game Management 2	Registered Alberta Conservation and Hunter Education Program Instructor Canadian Firearms Safety Course	

Refer to the corresponding module in Section D, E or F of this Guide for further information regarding each instructor qualification. In some instances it may be desirable to have other qualified individuals in the community work with the teacher to deliver modules (or parts thereof) that require additional instructor qualifications.

Sensitive Issues

Some Wildlife modules contain topics of a sensitive nature. Teachers will need to be respectful of family and community values in selecting appropriate modules for courses in Wildlife. Modules that reference the consumptive use of wildlife and examine hunting/fishing as methods of managing wildlife populations (i.e., WLD1070, WLD1080, WLD2070) must be selected and delivered with particular care. A school board motion and parental consent is required prior to delivering instruction in the safe

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handling of bows, arrows and firearms (i.e., WLD2070).

Ethical issues surrounding the sustainable management of species and ecosystems may also be sensitive for some students (i.e., WLD2090, WLD3090). Emphasis should be placed on a "process" for conflict analysis and not on particular positions that may be expressed.

For further clarification of provincial policy on sensitive issues, refer to Alberta Education's Policy on Controversial Issues (*Alberta Education Policy Manual*, 1996). Teachers and administrators should also review jurisdictional policies related to sensitive issues.

Health, Safety and Related Legislation

Facilities used to support a Wildlife program must ensure a safe learning/working environment. Students must be aware of federal, provincial and local regulations governing the tasks they perform, and establish appropriate personal and environmental health and safety procedures in modules that involve:

- the use of specialized hand/power equipment
- the handling and storage of hazardous materials
- outdoor trips and field-based investigation.

Students must understand immediate and potential hazards associated with the tasks they perform, and the possible impact of these hazards on self, others and the environment.

Of particular significance from the perspective of health and safety are modules that involve outdoor trips in wilderness environments (e.g., WLD1030, WLD2030). These modules require that both student and instructor have prior knowledge of survival techniques and are able to provide first aid in wilderness locations.

For additional information on health and safety standards, refer to the *Career Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 13).

Addressing Safety in Off-Campus Excursions

Outdoor trips and field-based investigations are recommended and should be an important part of teaching and learning throughout the Wildlife strand. Safety must be a prime consideration in planning off-campus learning experiences. Both teachers and students should engage in activities commensurate with their level of training and ability. Adequate instructional support, guidance and supervision must be provided at all times. Local jurisdiction and school policies must be understood by principals, teachers, parents, supervisors and students.

Preparation and Risk Anticipation

The preparation stage is an important part of any off-campus learning experience. At this stage of planning, potential risks can be anticipated and either avoided or moderated. The preparation stage should focus attention on:

- trip administration, including the use of parental permission forms, health information forms, school/system authorization forms and accident report forms as required
- a review of laws and regulations relevant to the learning site and activities that will be undertaken
- assessment of the learning site in terms of potential hazards and risks that may be present
- group size and the level of supervision that will be required (i.e., supervisor/student ratio)
- a briefing of parents, school administrators, government/industry authorities or others who should be informed regarding itineraries, participants and emergency response plans
- pre-trip logistics, including transportation, equipment, facility and departure date/time considerations
- student preparation, including the development of background knowledge/ experience and training in specific skill areas.

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On-Site Risk Management

Safety and risk management involves exercising situation-specific judgement throughout the course of off-campus learning. Judgement is the product of experience, and may include recognizing factors such as dangers imposed by equipment or animals, deteriorating weather, a decline in physical strength, or a more challenging task. Many of the hazard recognition skills can be taught in the classroom in the preparation stage.

A significant aspect of on-site risk management is group management. Teachers can exercise appropriate group management strategies by focusing attention on:

- pacing, including speed of travel, rest stops, distance travelled and fitness level of students
- maintaining a safe distance for observations
- group control, including position of leader, signal systems and buddy systems
- the establishment of group rules and norms
- clearly defined task allocations for each student
- objective hazard recognition in the field, including machinery and equipment, weather, terrain, flora and fauna
- subjective hazard recognition in the field, including level of group energy and level of cooperation.

Emergency Response

If students have been well prepared for field-based learning experiences and appropriate group management strategies exercised, the teacher will have maximized opportunities for effective response to an emergency situation. An effective emergency response action plan should include consideration of:

- a suitable approach to the accident site
- first-aid supplies and techniques
- a strategy for signalling assistance
- an evacuation plan
- group management throughout the emergency situation.

Identifying Linkages

Section H of this Guide describes linkages within CTS and with core and complementary programs.

In particular, teachers should be aware of the linkages of Wildlife with biology components in the junior and senior high science program, and also with environmental components in the junior high Environmental and Outdoor Education Program. The Wildlife strand is designed to reinforce, extend and apply related learnings in these courses. Collaborative planning at the school level will ensure meaningful learning experiences through effective integration of these courses.

The Career Transitions strand of CTS provides project, practicum, safety and leadership modules that may be combined with modules in Wildlife to increase opportunity for students to develop expertise, refine their competencies and/or obtain credentials.

Using "Project" Modules

Students may use one or more of the 10 project modules to expand learning beyond the competencies outlined in particular Wildlife modules. For example, a wildlife research project or environmental stewardship venture may require more than the 25, 50 or 75 hours available through modules by that name. In these instances, project modules from the Career Transitions strand may be accessed so as to provide sufficient time for completion of learning and the task. For each project module, the teacher and student establish specific learning outcomes, assessment criteria, resources and timelines.

Using "Practicum" Modules

Students may use one or more of the four practicum modules to extend the competencies developed in particular Wildlife module(s) in order to attain a recognized credential offered by an agency external to the school. For example, students who plan to work in remote wilderness areas may wish to access a practicum module from the Career Transitions strand in order to obtain a

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"First Aid in the Wilderness" certificate. Practicum modules must be supervised by both a qualified teacher and an experienced professional authorized to supervise trainees for the credential.

Project and practicum modules are **not** designed to be offered as distinct courses and should **not** be used to extend Work Experience 15, 25 and 35 courses.

Improving Smooth Transitions to the Workplace and/or Post-secondary Programs

Refer to Section H of this Guide for potential transitions students may make into:

- the workplace
- related post-secondary programs or other avenues for further learning.

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MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION D: INTRODUCTORY LEVEL

The following pages define the curriculum and assessment standards for the introductory level of Wildlife.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Module learner expectations define the competencies a student must demonstrate to achieve success in a module. Assessment standards define the criteria and conditions to be used for assessing the competencies defined in the module learner expectations.

Specific learner expectations provide a detailed framework for instruction to help students build the competencies defined in the module learner expectations. Additional information and suggestions for instruction are provided in the Notes column; teachers may wish to use this space to record their ideas for instruction or student projects.

Module WLD1010: What Is Wildlife? D.3
Module WLD1020: Natural History of Wildlife D.9
Module WLD1030: Outdoor Experiences 1 (Survival Skills) D.13
Module WLD1050: Taking Responsibility (People, Culture & Wildlife) D.19
Module WLD1070: Hunting & Game Management 1 (Ethics/Game Identification) D.23
Module WLD1080: Angling & Fish Management D.29

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MODULE WLD1010: WHAT IS WILDLIFE?

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students demonstrate knowledge of wildlife and ecosystems, and examine the need to manage and conserve wildlife.

Module Parameters: Access to a science laboratory and outdoor environment.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • provide a definition of wildlife	*Assessment of student achievement should be based on:* • a comprehensive definition of wildlife based on: – current wildlife policies established for Alberta and Canada – personal experience with and response to wildlife. *Assessment Tool* *Knowledge/Application Assessment: A Definition for Wildlife, WLD1010–1* A Wildlife Policy for Canada, *Canadian Wildlife Service* *Standard* *Address 6 of the criteria for a definition of wildlife (as identified in WLD1010–1) to a standard of 1 on the rating scale* • identifying and describing the range of wildlife species, both plant and animal, that are present in Alberta. *Assessment Tool* Alberta Wildlife Viewing Guide Nature Alberta: An Illustrated Guide to Common Plants and Animals *Standard* *Identify the common names, distinguishing characteristics and habitats of 20 different Alberta wildlife species; identification to include wild plants, invertebrates, fish, amphibians, reptiles, birds and mammals*	20

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • describe interrelationships among ecosystem components	*Assessment of student achievement should be based on:* • preparing a diagram of a food web or energy chain that illustrates the interrelatedness of ecosystem components. *Assessment Tool* *Sample Food Chain Scenario, WLD1010–2* *Standard* *Illustrate the interrelatedness of biotic and abiotic ecosystem components; include decomposers, producers and consumers* • identifying and explaining six limiting factors and their affects on wildlife populations. *Assessment Tool* *Knowledge/Application Assessment: Limiting Factors for Wildlife Populations, WLD1010–3* *Standard* *Respond to a standard of 1 on the rating scale* • conducting a laboratory or field investigation that monitors the effects of environmental/limiting factors on a wildlife population. *Assessment Tool* *Lab or Field Investigation: Limiting Factors for Wildlife Populations, WLD1010–4* *Standard* *Perform investigation to a standard of 1 on the rating scale* • a teacher-prepared assessment in which the student demonstrates knowledge of basic ecosystem concepts. *Assessment Tool* Ecosystems *(Teacher Resource Guide)* *Sample Assessment Items: Ecosystem Concepts, WLD1010–5* *Standard* *Response indicating 60% mastery*	60

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• explain the difference between wildlife conservation and preservation	• a presentation or report that: – provides definitions and Alberta examples of wildlife conservation and preservation – summarizes the views of three or more people interviewed regarding wildlife conservation and preservation – identifies relevant conservation, preservation and/or sustainable management issues cited in a current wildlife periodical (e.g., *Western Sportsman, Outdoor Edge, Equinox, Canadian Geographic, Environmental Views*), television documentary or news report. *Assessment Tool* *Presentations/Reports: Introductory Level, WLDPRE–1* *Sample Interview Project: Conservation and Preservation, WLD1010–6* *Standard* *Achieve a minimum rating of 1 on the rating scale for Presentations/Reports*	20
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

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Concept	Specific Learner Expectations	Notes
	The student should:	
Awareness	• write a definition of wildlife based upon personal experience and the results of research	Subscribe to *Update* (a magazine for environmental educators published by FEESA), *Equinox* or *Environmental Views*. See *A Wildlife Policy for Canada* and *The Status of Wildlife in Alberta*. Research different definitions of wildlife; emphasize that according to wildlife policy in Canada, wildlife includes both animal and plant life.
	• give evidence of diversity among Alberta's wildlife species.	Make special note of Alberta's native species of flora and fauna.
Ecosystems	• identify biotic and abiotic components of a local ecosystem; e.g.: – soil, water and air characteristics – climate – plant and animal species – micro-organisms	See "A Guide to the Ecosystem Concept" (*Project Wild*, p. 439). Inventory biotic and abiotic ecosystem components.
	• explain the interrelatedness of components within a habitat; e.g.: – interrelationships among food, water, shelter and space – relationship of soil, water and air characteristics to plant and animal health	Given a picture/ photograph of a local habitat altered naturally or by humans, discuss possible consequences for three wildlife species.
	• analyze relationships among wildlife species; e.g.: – role of producers, consumers and decomposers – food webs and energy chains – social organizations and species competition	Draw food webs/ pyramids and energy chains using *Natural Regions of Alberta* posters.

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Concept	Specific Learner Expectations	Notes
Ecosystems (continued)	*The student should:* • identify environmental factors that affect wildlife populations; e.g.: – natural versus non-natural mortality – climatic conditions – pollution – loss of habitat	Consider factors that determine carrying capacity. See "Checks and Balances" and "Deadly Links" (activities in *Project Wild*). Discuss natural and human-caused changes in habitat, and the effects of these changes on wildlife species. Consider ecosystem components/ relationships of particular significance during the winter season.
	• relate the concepts of "limiting factors" and "carrying capacity" to wildlife populations • identify factors associated with adaptation and change in species.	See *Project Wild* ("Oh Deer - How Many Bears Can Live in the Forest?). Distinguish between structural, physiological and behavioural adaptation.
Wildlife Conservation and Preservation	• compare wildlife conservation with preservation • explain how the well-being of both humans and wildlife depend upon the quality of the natural environment • state differing opinions regarding wildlife conservation, preservation and sustainable management of the environment.	Cite Canadian examples of conservation and preservation.

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MODULE WLD1020: NATURAL HISTORY OF WILDLIFE

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students investigate the diversity of Canadian wildlife in terms of structure, behaviour and habitat, and compare Alberta wildlife with wildlife in other parts of the world.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the diversity of Canadian wildlife	• describing diversity among: – major groups of Canadian wildlife, including plants, insects, fish, amphibians, reptiles, birds and mammals – species within each major group of Canadian wildlife – the distribution and habitats of Canadian wildlife. *Assessment Tool* *Knowledge/Application Assessment: Diversity in Wildlife, WLD1020–1* Alberta Wildlife Viewing Guide Nature Alberta: An Illustrated Guide to Common Plants and Animals *Standard* *Respond to a standard of 1 on the rating scale*	25
• explain the structure, behaviour and habitat of an Alberta wildlife species	• completing all components of a research project on the structures, behaviours and habitats of one Alberta wildlife species. *Assessment Tool* *Research Process: An Alberta Wildlife Species, WLD1020–2* *Standard* *Complete research to a standard of 1 on the rating scale*	50

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • given one of Alberta's six natural regions, designing a "critter" (i.e., wildlife species) that reflects structural, physiological and behavioural adaptations suited to that environment. *Assessment Tool* *Project Assessment: "Design a Critter," WLD1020–3* *Standard* *Complete all tasks to a standard of 1 on the rating scale*	
• **compare and contrast Alberta's wildlife with wildlife in other parts of the world**	• a presentation or report that compares two similar ecosystems in different parts of the world with respect to: – Earth history – geography/climate – number of different species – relative number of niches. *Assessment Tool* *Presentations/Reports: Introductory Level, WLDPRE–1* *Standard* *Achieve a minimum rating of 1 on the rating scale for Presentations/Reports* • defining biodiversity, and suggesting possible reasons for differences within and among wildlife species/ spaces in Alberta as compared to those in other parts of the world. *Assessment Tool* *Knowledge/Application Assessment: Biodiversity, WLD1020–4* *Standard* *Respond to a standard of 1 on the rating scale*	25
• **demonstrate basic competencies.**	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

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Concept	Specific Learner Expectations	Notes
Diversity of Wildlife	*The student should:* • describe the major groups of wildlife present in Alberta and Canada; e.g.: – micro-organisms – invertebrates – plants – insects – fish, amphibians, reptiles – birds, mammals • identify and compare species within major groups of wildlife • give examples of wildlife species present in rural and urban environments and water and land ecosystems.	Research representative wildlife groups for major biomes in Alberta and Canada.
Structure, Behaviour and Habitat	• compare the structure, behaviour and habitat of species that characterize Alberta's wildlife • explain interactions of selected wildlife species with other species and the environment; e.g.: – predator/prey relationships – food chains/webs – symbiosis/parasitism – commensalism/mutualism • illustrate how wildlife species adapt to their environments • explain why certain wildlife species may live in some regions of Alberta and Canada, and not in others • conduct a research study on one or more wildlife species present in Alberta; e.g.: – structural and behavioural adaptations – interaction with other species – habitat – life cycle – social organization.	Focus attention on Alberta's six natural regions. Learn to recognize wildlife signs, tracks, behaviours, scat, etc. Design food webs/ pyramids and energy chains using *Natural Regions of Alberta* posters. Give examples of wildlife adaptation success. See "Focus on Research." Use magazines/ encyclopedias, resource persons, public libraries, web sites, government brochures, etc. Make plaster casts of animal tracks; collect fur specimens, skulls, bones, nests, etc. Reference activities provided in *The Art of Seeing and Tracking*.

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Concept	Specific Learner Expectations	Notes
Global Context	*The student should:* • compare diversity among living organisms in Alberta and other parts of the world • identify reasons for differences in diversity among living organisms in Alberta and other parts of the world; e.g.: – Earth history – evolution – extinction – number of niches – biotic and abiotic factors – human influences.	Compare the boreal forest in Canada with the boreal forest in Asia. If Alberta data are not available, compare diversity in temperate to tropic regions or temperate to arctic regions.

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MODULE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS)

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: Emergency First Aid (current certification)

Module Description: Students demonstrate the basic skills required for responsible participation in a range of outdoor activities.

Module Parameters: Access to an outdoor wilderness environment (e.g., one of Alberta's six natural regions) and gear for outdoor expeditions.

Instructor training (current certification) in Standard Level First Aid is required; instructor training in First Aid in the Wilderness is recommended.

Teachers may find it desirable to access the services of a qualified Outdoor Guide in delivering components of this module.

Off-campus learning activities must be commensurate with previous levels of wilderness training and experience; day trips should precede extended overnight trips; experience in hardcover camping should precede potential softcover camping and/or emergency shelter camping opportunities.

Note: Specific learner expectations in Outdoor Experiences 1 and 2 link with the *National Occupational Standards for Outdoor Guide* (Alberta Tourism Education Council), and address core skills in Environmental Awareness, Camp and/or Trip Operation, Safety and Survival.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training/certification and linkages.

Supporting Module: CTR1210 Personal Safety (Management)

Because of the practical nature of this module, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

Note: WLD1030 and WLD2030 (Outdoor Experiences 1 and 2) provide opportunities for wilderness interaction at a personal level. This module sequence should place emphasis on developing skills that will enable students to safely observe and appreciate wildlife and habitat within one or more of Alberta's six natural regions.

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Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• demonstrate knowledge and skills necessary for responsible outdoor experiences	• a teacher-prepared assessment in which the student demonstrates knowledge of "Safety," "Survival" and "Environmental Impact" as outlined in the *National Occupational Standards for Outdoor Guide*. Assessment to address: – safety guidelines – survival techniques – ecotourism and carrying capacity. *Assessment Tool* *Sample Assessment Items: Outdoor Experiences 1, WLD1030–1* *Standard* *Response indicating 80% mastery*	20
• conduct safe outdoor activities that have minimal environmental impact	• within a continuous timeframe of 20 or more hours, and through access to an outdoor environment, conducting safe outdoor activities that have minimal impact on the environment. The student will demonstrate appropriate procedures for: – travel in outdoor environments – observation of flora and fauna – minimum impact/no-trace land use – setting up emergency shelter – signalling for help. *Assessment Tool* *Task Checklist: Outdoor Experiences 1, WLD1030-2* *Lab Assessment: Outdoor Experiences, WLDLAB* *Standard* *Achieve a performance rating of 2 in task assessment and lab assessment*	80

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • maintaining a log/journal of outdoor experiences that provides summative reflection on: – individual and group preparedness, cooperation and responsibility – observations of wildlife and habitat – environmental ethics. *Assessment Tool* *Reflection Guide for Outdoor Experiences, WLDREF–OUT* *Standard* *Complete five log/journal entries; address criteria for reflection to a standard of 1 on the rating scale*	
• **demonstrate basic competencies.**	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Wilderness Experience	*The student should:* • identify, assess, avoid and/or respond to physical hazards that may be imposed by the natural environment; e.g.: – particular terrain and conditions, including avalanche, rock slides, lake and river ice, and bush travel – wildlife that may be encountered, including bears, bees, ticks, nonedible plants, snakes – changes in weather conditions that may affect personal and group safety • identify, assess, avoid and/or respond to physiological and psychological factors often associated with outdoor experiences; e.g., – dealing with hypothermia, frostbite, dehydration and heat stroke – understanding fatigue and when not to move – coping with adversities, such as getting lost or hurt	**Student safety must be a prime consideration in selecting learning activities within this module. Activities must be consistent with student knowledge and skill levels.** Investigate hazards pertinent to a particular activity. View films and slide shows of outdoor activities that involve physical hazards. Invite guest speakers to present information and advice on expeditions.

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Concept	Specific Learner Expectations	Notes
	The student should:	
Wilderness Experience (continued)	• list and explain necessary steps to take in emergency and survival situations in the outdoors; e.g.: – what to do if lost or separated from the group – first aid and emergency response to injury – construction of emergency shelters – how to gather food from edible plants – en route organizational strategies, including lead and sweep, regrouping procedures, pacing	Engage students in simulation activities, role playing and case studies. Review basic first aid and immerse students in emergency response situations.
	• select appropriate personal and group gear for outdoor activities; e.g.: – personal gear, with consideration to maintaining body temperature and protection from injury – group gear, to meet requirements for food, shelter, travel and emergencies	Have students present a "fashion show" or produce a video that demonstrates appropriate equipment and its use.
	• demonstrate safe use and appropriate care of outdoor hand tools, including knives, axes and saws	Conduct maintenance clinic.
	• demonstrate safe procedures for building and using outdoor fires; e.g.: – signalling – warming – cooking	Demonstrate techniques — then plan and carry out a schoolyard "cookout."
	• explain techniques used to plan, pack, carry and prepare foods during outdoor expeditions; e.g.: – nutritional requirements – portability and preservation factors – food preparation techniques – safe use of campfires	Involve students in menu planning for a hypothetical or proposed field trip.
	• explain techniques that can be used to maintain hygiene during outdoor expeditions; e.g.: – water purification systems – food storage – personal health	Invite guest speakers from a health department or from national/provincial parks.

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Concept	Specific Learner Expectations	Notes
Wilderness Experience (continued)	*The student should:* • explain techniques for minimum impact/no-trace land use; e.g.: – guidelines for camping, controlling garbage, using water supply, using open fires and disposing of human waste – protection of flora and fauna.	Discuss principles of "ecotourism." Consider carrying capacity of a local area in relation to minimum environmental impact. Cite examples of careers in tourism (e.g., outdoor guide, fishing guide) that promote minimum impact land use.
Outdoor Travel	• plan and conduct safe outdoor expeditions in the natural environment; e.g.: – research information from a variety of sources, including maps, aerial photographs, guidebooks, journals and local experts – interpret route information by selecting reasonable destinations, estimating travel time and anticipating obstacles – apply knowledge and skills while en route, including map reading and compass skills, knowledge of terrain and route selection, and mapping of key landmarks and directions • use appropriate modes of travel to safely participate in outdoor activities; e.g.: – hiking/backpacking – cross-country skiing – snowshoeing – canoeing • demonstrate safe and unobtrusive techniques to examine wildlife and habitat; e.g.: – plant/animal identification – wildlife hazards – animal tracks and scat – animal behaviour/social patterns	Examine maps, research books and reference materials on particular field sites to be visited. Assess alternative routes with regard to time and preparation required for each. Conduct map reading and basic orienteering exercises in school yard. Plan and implement a sequence of skill development activities with a follow-up excursion. Develop appropriate observation techniques; practise observing students in a library, animals in the zoo, etc. Reference the activities and suggestions provided in *The Art of Seeing and Tracking*. Make plaster casts of animal tracks. Examine furs, skulls, bones, nests, etc.

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Concept	Specific Learner Expectations	Notes
Outdoor Travel (continued)	*The student should:* • demonstrate minimum impact/no-trace land use while participating in outdoor expeditions; e.g.: – proper trail use, including the avoidance of trail widening – campsite care, including the use of fires and stoves, tent site selection and firewood selection – waste disposal techniques, including latrines, waste water disposal and garbage.	Observe human impacts on a wilderness area. Set up a model campsite in the school yard or a local park; practise minimum impact/ no-trace land use.

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MODULE WLD1050: TAKING RESPONSIBILITY (PEOPLE, CULTURE & WILDLIFE)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the significance of wildlife in society, examine relationships among humans and wildlife, and research potential career opportunities in wildlife-related fields.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the social, economic and environmental significance of wildlife	• identifying and explaining six or more scenarios where wildlife: – is important in social and cultural contexts – has economic value – is important in environmental contexts. *Assessment Tool* *Knowledge/Application Assessment: Significance of Wildlife, WLD1050–1* *Sample Interview Project: Significance of Wildlife, WLD1050–2* *Standard* *Respond to a standard of 1 on the rating scale*	40
• explain how personal needs, wants, beliefs and actions may influence wildlife and wildlife habitats	• completing a research project that examines influences of personal needs, wants, beliefs and actions on wildlife and its habitat. Research to address impacts of: – human population growth – technological and/or economic development – the extraction and use of natural resources. *Assessment Tool* *Research Process: Impacts on Wildlife and Habitat, WLD1050–3* *Standard* *Complete all components of research to a standard of 1 on the rating scale*	40

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • maintaining a log/journal of reflections and thoughts regarding the impact of personal attitudes, actions and lifestyle on wildlife and the environment, and ideas for environmental citizenship. *Assessment Tool* *Reflection Guide for Environmental Responsibility/Citizenship, WLDREF–ENV* *Standard* *Complete five journal/log entries; address criteria for reflection to a standard of 1 on the rating scale*	
• identify careers in wildlife-related fields	• given current information on career opportunities in wildlife-related fields, completing a research project on one or more career opportunities in the wildlife sector. *Assessment Tool* *Career Search: Introductory Level, WLDCAR–1* *Standard* *Conduct research to a standard of 1 on the rating scale*	20
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Significance of Wildlife	*The student should:* • explain the social and cultural significance of wildlife; e.g.: – recreational – spiritual and aesthetic – medicinal – indigenous peoples – mythology/astrology – literature	Subscribe to a magazine for environmental educators (e.g., *Borealis*, *Environmental Views*, *Update*).

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Concept	Specific Learner Expectations	Notes
Significance of Wildlife (continued)	*The student should:* • explain the economic significance of wildlife; e.g.: – tourism – subsistence – commercial trade • explain the environmental significance of wildlife; e.g.: – water, air and soil quality – diversity of life forms – maintenance of ecosystems.	Investigate differing views regarding the social, cultural, economic and environmental significance of wildlife based on interviews with community members. Create a pictorial exposé of social and cultural effigy found in periodicals and advertisements.
Personal Impact	• explain how individual attitudes, actions and lifestyle may affect wildlife and the environment; e.g.: – recreation and tourism – farming practices – housing and transportation choices – subsistence and commercial trade – energy use • describe how the growth of human populations may affect wildlife through the destruction of habitat; e.g.: – deforestation – urban sprawl – construction of roads and buildings – extraction or harvesting of natural resources – pollution.	See *Project Wild* (Section 5: People, Culture and Wildlife). Role playing: • "Area of Land for Sale" (Land Conservation Education Program, Factsheet #19). • "To Dam or Not to Dam" (*Project Wild*, p. 312).
Career Opportunities	• outline career areas and the range of occupational opportunities within wildlife-related fields; e.g.: – recreation – tourism – resource harvesting – literature, art and/or film – conservation and management – research – education	Gather information from: • post-secondary calendars • interviews with people employed in the field • job search manuals • employment offices • newspapers and government publications

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Concept	Specific Learner Expectations	Notes
Career Opportunities (continued)	*The student should:* • research one or more career opportunities in a wildlife-related field; e.g.: – job description/working conditions – entry requirements/competencies – educational/training programs.	Contact "Career Hotline" (telephone 1–800–661–3753).

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MODULE WLD1070: HUNTING & GAME MANAGEMENT 1 (ETHICS/GAME IDENTIFICATION)

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the role of regulated hunting in game management, identify Alberta's game animals, and demonstrate knowledge and skills that ensure safe and comfortable experiences in the outdoors.

Module Parameters: Access to an outdoor wilderness environment and relevant government agencies.

Teacher must be a registered Alberta Conservation and Hunter Education Program Instructor (Alberta Environmental Protection, Natural Resources Service).

Instruction on basic first-aid and survival techniques to be provided by person(s) having current certification in Standard Level First Aid.

Note: Alberta Conservation and Hunter Education Program Student Certificates may be awarded to students who successfully complete Hunting & Game Management 1 and 2, and receive at least 80% on the Alberta Conservation and Hunter Education Examination.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training and certification.

Supporting Module: CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this module, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • **explain game management practices and the role of regulated hunting in game management**	*Assessment of student achievement should be based on:* • identifying and explaining basic principles of wildlife management and the role of regulated hunting in game management. *Assessment Tool* *Knowledge/Application Assessment: Principles of Wildlife Management, WLD1070–1* *Standard* *Respond to a standard of 1 on the rating scale*	25

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • given a current issue regarding hunting ethics: – negotiating and debating the issue while assuming the role of one or more stakeholder groups – preparing and presenting a position paper that outlines an ethical plan of action. *Assessment Tool* *Negotiation and Debate: Introductory Level, WLDNEG–1* *Position Paper: Hunting Ethics, WLD1070–2* *Standard* *Address criteria in negotiation/debate and the position paper to a standard of 1 on the rating scale*	
• identify the distinguishing characteristics of Alberta's ungulates, carnivores, upland birds and waterfowls	• given pictures, videos and/or slides of Alberta's ungulates, carnivores, upland birds and waterfowl, identifying selected species by: – common name – distinguishing characteristics/habits – habitat/range. *Assessment Tool* *Guide to Wildlife Identification, WLD1070–3* Alberta Conservation and Hunter Education Manual, *Natural Resources Service (Alberta Fish and Wildlife)* *Standard* *Identify eight big game ungulates, five big game carnivores, eight upland game birds and 16 waterfowl*	40
• describe basic equipment and techniques required for safe and comfortable experiences in the outdoors	• performing practical skills within each of the following areas of outdoor experience: – basic first aid and survival techniques – safe use and care of outdoor equipment. *Assessment Tool* *Task Checklist: First Aid and Outdoor Survival, WLD1070–4* *Lab Assessment: Outdoor Experiences, WLDLAB* *Standard* *Achieve a minimum performance rating of:* – *2 in basic first aid/survival* – *1 in the use/care of outdoor equipment* – *1 in lab assessment*	35

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a summative theory test for the module in which the student demonstrates knowledge of wildlife management and hunting ethics, the distinguishing characteristics of Alberta's four classes of game species, basic first-aid/survival techniques, and the safe use/care of outdoor equipment. *Assessment Tool* *Sample Test Items: Alberta Conservation and Hunter Education Program, Natural Resources Service (Alberta Fish and Wildlife)* *Standard* *Response indicating 80% mastery*	
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Role of Regulated Hunting	*The student should:* • describe the goals of game management and agencies responsible for managing Alberta's game animals • identify components and techniques of a game management system; e.g.: – biological research – inventory – habitat manipulation – managing wildlife populations • explain the role of regulated hunting in game management and conservation	See *Alberta Conservation and Hunter Education Manual*. Contact any district Natural Resources Service (Fish and Wildlife) Office for information regarding instructor workshops. Contact the Alberta Hunter Education Film Library. Subscribe to *The Alberta Game Warden*.

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Concept	Specific Learner Expectations	Notes
Role of Regulated Hunting (continued)	*The student should:* • describe responsibilities of the hunter in reporting conditions that may endanger wildlife; e.g.: – pollution and its effect on wildlife – habitat loss and abuse – threats to rare and endangered species – neglect for wildlife laws • identify ethical considerations that provide a social standard for conduct when hunting; e.g.: – hunter-landowner relations – regard for other land users – respect for self – respect for wildlife – respect for laws and enforcement officers.	Philosophical discussion: • how much wildlife of any species is enough? • how do we deal with preferred species? • how do we deal with problem species? • what uses of wildlife are appropriate? Cite examples of relevant careers: • research/conservation • law enforcement • tourism and guiding.
Identification of Game Animals	• identify and describe the distinguishing characteristics and habits of Alberta's big game ungulates; e.g.: – horned animals – antlered animals • identify and describe the distinguishing characteristics and habits of Alberta's big game carnivores; e.g.: – cougar, wolf and coyote – grizzly bear and black bear • identify and describe the distinguishing characteristics and habits of Alberta's upland game birds; e.g.: – ptarmigan – grouse – pheasant and hungarian partridge • identify and describe the distinguishing characteristics and habits of Alberta's waterfowl; e.g.: – puddle and diving ducks – geese	Individual/small group research. Displays and presentations. Pictures and slides.

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Concept	Specific Learner Expectations	Notes
Identification of Game Animals (continued)	*The student should:* • distinguish between similar game and non-game species of ungulates, carnivores, upland birds and waterfowl; e.g.: – woodland caribou – lynx – wild turkey – whooping crane and swan.	
Equipment, Techniques and Safe Practices	• describe the characteristics, use and care of basic equipment and personal gear used when hunting in the outdoors; e.g.: – clothing – bedding and tents – knives and axes – compass and maps – backpacks • identify items to be included in first-aid and survival kits • identify factors that affect ability to cope with emergency conditions in the outdoors; e.g.: – pain and cold – thirst and hunger – fatigue, boredom and loneliness – fear • describe procedures for examining someone who is hurt or suddenly becomes ill in the outdoors • demonstrate emergency first-aid techniques; e.g.: – artificial respiration – control of bleeding from cuts – care for victims of shock or concussion – care of sprains, fractures and dislocations – treatment of burns, blisters and frostbite – care of animal and insect bites	Emphasis on field experiences. Potential linkages exist with the "First Aid in the Wilderness" certificate course (see Section H: Linkages/Transitions).

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Concept	Specific Learner Expectations	Notes
Equipment, Techniques and Safe Practices (continued)	*The student should:* • demonstrate techniques for detecting, treating and preventing hypothermia • demonstrate basic survival techniques for the outdoors; e.g.: – fire building – shelter building – sending rescue signals – securing water and food.	

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MODULE WLD1080: ANGLING & FISH MANAGEMENT

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain the role of recreational fishing in the management and conservation of fish resources, and demonstrate knowledge of the responsible practices required for fishing or related outdoor activities.

Module Parameters: Access to an outdoor aquatic environment and relevant government agencies.

Teacher must be a registered Alberta Fishing Education Program Instructor (Alberta Environmental Protection, Natural Resources Service).

Instruction on basic first-aid and survival techniques to be provided by person(s) having current certification in Standard Level First Aid.

Note: Alberta Fishing Education Program Student Certificates may be awarded to students who successfully complete this module and receive at least 80% on the Alberta Fishing Education Examination.

See Section C (Planning for Instruction) and Section H (Linkages/ Transitions) of this Guide for further information on instructor training and certification.

Supporting Module: CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this module, students must have a general knowledge of basic first-aid and survival techniques relevant to aquatic environments. See Planning for Instruction in Section C for further information on student safety.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • explain the role of recreational fishing in the management of fish resources, and social and legal standards of conduct for game fishing	*Assessment of student achievement should be based on:* • identifying and explaining: – principles of fisheries management and the role of recreational fishing in managing fish resources – ethical and legal responsibilities of individuals involved in game fishing. *Assessment Tool* *Knowledge/Application Assessment: Principles of Fisheries Management, WLD1080–1* *Standard* *Respond to a standard of 1 on the rating scale*	30

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • given a current issue regarding fishing ethics: – negotiating and debating the issue while assuming the role of one or more stakeholder groups – preparing and presenting a position paper that outlines an ethical plan of action. *Assessment Tool* *Negotiation and Debate: Introductory Level, WLDNEG–1* *Position Paper: Fishing Ethics, WLD1080–2* *Standard* *Address criteria in negotiation/debate and the position paper to a standard of 1 on the rating scale*	
• **identify and describe the distinguishing characteristics and habitats of Alberta's game fish**	• given pictures, videos and/or slides of major game fish species in Alberta, identifying selected species by: – common name – physical characteristics – habitat and range – spawning and feeding habits. *Assessment Tool* *Guide to Fish Identification, WLD1080–3* Alberta Fishing Education Manual, *Natural Resources Service (Alberta Fish and Wildlife)* *Standard* *Identify 10 species of salmonids, three species of percids and four other species of game fish*	40
• **describe basic fishing equipment and safe practices for fishing**	• demonstrating practical techniques for the safe handling and use of fishing equipment. *Assessment Tool* *Task Checklist: Fishing Equipment and Techniques, WLD1080–4* *Lab Assessment: Outdoor Experiences, WLDLAB* *Standard* *Achieve a performance rating of 2 in each area on the task checklist and a performance rating of 1 in lab assessment*	30

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a summative theory test for the module in which the student demonstrates knowledge of fisheries management, game fish identification, fishing equipment/techniques, fish handling/cooking and safety considerations. *Assessment Tool* *Sample Test Items: Alberta Fishing Education Program, Natural Resources Service (Alberta Fish and Wildlife)* *Standard* *Response indicating 80% mastery*	
• **demonstrate basic competencies.**	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Role of Recreational Fishing	*The student should:* • describe the goals of fisheries management and agencies responsible for managing Alberta's fish populations • distinguish among recreational, commercial and game fishing • describe components and techniques of a fisheries management program; e.g.: – fishing regulations – fish stocking and monitoring – aquatic habitat development and improvement – law enforcement – public information programs	See *Alberta Fishing Education Program Manual*. Contact any district Natural Resources Service (Fish and Wildlife) Office for information regarding instructor workshops. Subscribe to *The Alberta Game Warden*. Contact Alberta Environmental Protection for student copies of *Alberta Guide to Sportfishing*.

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Concept	Specific Learner Expectations	Notes
Role of Recreational Fishing (continued)	*The student should:* • explain the role of recreational fishing in the management and conservation of fish resources • identify ethical considerations that provide a social standard of conduct for game fishing; e.g.: – fisherman–landholder relations – regard for other people – respect for self – respect for wildlife – catch-and-release fishing – respect for laws • describe fishing regulations and associated legislation that provide a legal standard of conduct for game fishing; e.g.: – laws to protect and conserve fish – laws to govern conduct of fishermen – small vessel legislation – Criminal Code – *Litter Act*.	Investigate monitoring techniques: • electrofishing • sampling, tagging and netting. Panel discussions and student debates. Investigate local fishing seasons and quotas. Discuss catch-and-release fishing as a philosophy as well as a technique. Why are some persons more inclined to keep fish from stocked lakes than when caught in the wild? Invite a resource person from a legal profession to explain the legal process and law enforcement. Cite examples of relevant career opportunities: • research/conservation • law enforcement • tourism/guiding.
Fish Identification	• describe common ways of classifying fish; e.g.: – by species relationship: • salmonids • percids • minnows – by water temperature preference: • cold water • warm water – by feeding habits: • fish eaters • insect eaters • plant eaters	Individual/small group research. Another way of classifying fish may be by habitat; e.g.: • lake dwellers • river dwellers.

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Concept	Specific Learner Expectations	Notes
Fish Identification (continued)	*The student should:* • relate the relative abundance of fish species to their position in a food chain	Draw food chains.
	• describe water characteristics that influence the distribution and abundance of fish; e.g.: – temperature – dissolved oxygen – water depth – alkalinity (acidity)	
	• identify and describe the distinguishing characteristics of major game fish species in Alberta; e.g.: – physical features – habitat – spawning habits – feeding habits – angling techniques.	Displays and presentations.
Equipment and Safe Practices	• describe the characteristics, use and care of common fishing equipment; e.g.: – fishing rods and reels – lines and knots – hooks and artificial lures – swivels and wire leaders – sinkers, down riggers and floats – netting	Emphasis on field experiences.
	• describe the nature and purpose of different angling techniques	Spin and bait casting, trolling, fly fishing, ice fishing, bow fishing.
	• demonstrate techniques for the care of table fish and trophy fish	
	• demonstrate techniques for handling and cooking table fish	Cleaning, dressing, scaling, filleting, skinning, freezing and cooking.

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Concept	Specific Learner Expectations	Notes
Equipment and Safe Practices (continued)	*The student should:* • explain safe practices for fishing and engaging in related outdoor activities; e.g.: – boat safety – ice safety – hook removal – bear safety • describe emergency first-aid and survival techniques, and items to be included in first-aid and survival kits.	Potential linkages exist with the "First Aid in the Wilderness" certificate course (see Section H: Linkages/ Transitions).

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MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION E: INTERMEDIATE LEVEL

The following pages define the curriculum and assessment standards for the intermediate level of Wildlife.

> Intermediate level modules help students build on the competencies developed at the introductory level and focus on developing more complex competencies. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Module WLD2020: Measuring the Value (Diversity of Wildlife Values) E.3
Module WLD2030: Outdoor Experiences 2 (Wilderness Excursion) E.7
Module WLD2040: Wildlife Spaces & Species E.13
Module WLD2060: Interactions (Wildlife & Society) E.17
Module WLD2070: Hunting and Game Management 2 (Field Techniques/Regulations) E.23
Module WLD2090: Issues in Wildlife 1 (Research & Analysis) E.29

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MODULE WLD2020: MEASURING THE VALUE (DIVERSITY OF WILDLIFE VALUES)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students assess the significance of wildlife in society, analyze relationships between humans and wildlife, and research career opportunities in wildlife-related fields.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• compare and contrast the social, environmental and economic significance of wildlife	• comparing and contrasting the social, environmental and economic significance of wildlife within two cultures (e.g., First Nation, European, Asian). *Assessment Tool* *Knowledge/Application Assessment: Significance of Wildlife, WLD2020–1* *Standard* *Respond to a standard of 2 on the rating scale* • developing a plan for an ecotour (e.g., bird watching, whale watching, river rafting, horseback riding). Plan to address: – reasons for taking the tour – tour agenda/itinerary – tour details – guidelines for minimum environmental impact. *Assessment Tool* *Criteria for Planning an Ecotour, WLD2020–2* *Standard* *Complete the plan to a standard of 2 on the rating scale*	40
• describe the impact of personal needs, wants, beliefs and actions on wildlife and wildlife habitats	• maintaining a log/journal of reflections and thoughts regarding the impact of personal attitudes, actions and lifestyle on wildlife and the environment, and ideas for environmental citizenship. *Assessment Tool* *Reflection Guide for Environmental Responsibility/Citizenship, WLDREF–ENV* *Standard* *Complete five journal/log entries; address criteria for reflection to a standard of 2 on the rating scale*	40

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a proposal (oral, written or visual) that suggests one personal action and one leadership role in relation to wildlife conservation and environmental citizenship. *Assessment Tool* *Assessment Criteria: Proposal for Environmental Action, WLDPRO* *Sample Proposals: Wildlife Enhancement, WLDSAM* *Standard* *Complete each proposal to a standard of 2 on the rating scale* • a letter written to a government official or environmental organization expressing support or concern regarding the impact of personal/societal actions on wildlife and habitat. *Assessment Tool* *Assessment Criteria: Letters of Support or Concern, WLDLET* *Standard* *Complete the letter to a standard of 2 on the rating scale; critique of response is optional*	
• describe career opportunities and trends in wildlife-related fields	• given current information on career opportunities in wildlife-related fields (e.g., recreation, tourism, resource consumption, literature/art/drama, conservation and management, research, education), completing a research project on one or more careers in the wildlife sector. *Assessment Tool* *Career Search: Intermediate Level, WLDCAR–2* *Standard* *Conduct research to a standard of 2 on the rating scale*	20
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

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Concept	Specific Learner Expectations	Notes
Significance of Wildlife	*The student should:* • explain how human and wildlife relationships are expressed through religious teachings, art, music, drama, literature, photography or other means of expression • describe present and future social and health benefits that may be derived from wildlife; e.g.: – recreational – medicinal – spiritual and aesthetic • explain how wildlife may be used as a barometer of overall environmental quality; e.g.: – water, air and soil quality – diversity of life forms • infer relationships among the distribution and abundance of wildlife and the economy of a given area; e.g.: – tourism – commercial trade – industrial products.	See *Project Wild* (Section 2: Diversity of wildlife values). Interview a religious leader about the significance of wildlife in his or her belief system. Visit an art gallery and survey expressions of wildlife through art forms. Gather and display advertisements for ecotours. Interview a local RCMP or conservation officer about the confiscation of wildlife parts. Prepare a tally sheet of pros and cons regarding several uses of wildlife.
Personal Impact	• describe the impact of individual attitudes, actions and lifestyle on wildlife and the environment; e.g., – pursuit of leisure time and outdoor activities – patterns and levels of resource consumption – subsistence and commercial trade – consumptive/conservation ethic • describe the impact of human population growth on wildlife and its habitat; e.g.: – rural and urban development – pollution – patterns and levels of resource consumption – recreation and tourism • propose responsible and ethical lifestyle actions in relation to wildlife and the environment; e.g.: – personal actions – leadership roles.	Conduct debates on current wildlife issues. Consider: • use of water and energy • housing and transportation choices. Consider: • transportation corridors • extraction/harvest of natural resources • addition of materials to the environment. Write letters of praise/ concern to government agencies and environmental organizations. Design a poster that illustrates responsible actions in relation to wildlife and environment.

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Concept	Specific Learner Expectations	Notes
Career Opportunities	*The student should:* • identify employment opportunities related to wildlife in both public and private sectors at local, national and international levels • outline career areas and the range of occupational opportunities within wildlife-related fields; e.g.: – recreation – tourism – resource harvesting – literature, art and/or film – conservation and management – research – education • gather employment statistics within one or more career areas; e.g.: – types of careers – number of workers – employment trends • infer career opportunities and trends from employment statistics • research one or more career opportunities in a wildlife-related field; e.g.: – job description/working conditions – entry requirements/competencies – educational/training opportunities – wage and security of employment relative to other fields – opportunity for advancement – opportunity for self-employment and entrepreneurship.	Gather information through: • post-secondary calendars • interviews with people employed in the field • job search manuals • employment offices • newspapers and government publications. Obtain National Occupational Profiles (NOC). Contact the "Career Hotline" (telephone 1–800–661–3753).

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MODULE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION)

Level: Intermediate

Theme: Social and Cultural Perspectives

Prerequisites: WLD1030 Outdoor Experiences 1 (Survival Skills)
Emergency First Aid (current certification)

Module Description: Students plan, prepare for and conduct an extended outdoor wilderness trip.

Module Parameters: Access to an outdoor wilderness environment and gear for outdoor expeditions.

Instructor training (current certification) in Standard Level First Aid is required; instructor training in First Aid in the Wilderness is recommended.

Teachers may find it desirable to access the services of a qualified Outdoor Guide in delivering components of this module.

Off-campus learning activities must be commensurate with previous levels of wilderness training and experience; day trips should precede extended overnight trips; experience in hardcover camping should precede potential softcover camping and/or emergency shelter camping opportunities.

Note: Specific learner expectations in Outdoor Experiences 1 and 2 link with the *National Occupational Standards for Outdoor Guide* (Alberta Tourism Education Council), and address core skills in Environmental Awareness, Camp and/or Trip Operation, Safety and Survival.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training/certification and linkages.

Supporting Module: CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this module, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

Note: WLD1030 and WLD2030 (Outdoor Experiences 1 and 2) provide opportunities for wilderness interaction at a personal level. This module sequence should place emphasis on developing skills that will enable students to safely observe and appreciate wildlife and habitat within one or more of Alberta's six natural regions.

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Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• present a plan for an extended outdoor wilderness trip	• developing and presenting collaborative group plans for an extended outdoor wilderness trip as outlined in the *National Occupational Standards for Outdoor Guide* (see Camp and/or Trip Operation: Prepare for Trips). Group plans to address: – pre-trip planning and logistics – equipment and supply requirements – organization of personal gear. *Assessment Tools* National Occupational Standards for Outdoor Guide *Task Checklist: Outdoor Experiences 2, WLD2030–1* *Standard* *Complete each component of trip planning to a standard of 2 on the rating scale*	20
• conduct and conclude, safely, an extended outdoor wilderness trip with minimal environmental impact	• within a continuous timeframe of at least 72 hours, and through access to an outdoor environment, conduct and conclude the trip as outlined in the *National Occupational Standards for Outdoor Guide* (see Camp and/or Trip Operation: Conduct Trips, Legal Issues: Comply With Legislation and Environmental Awareness: Minimize Impact). The student will demonstrate procedures for: – setting up camp – preparing meals – ensuring safety and survival of self and others – complying with pertinent legislation – breaking camp – ensuring least possible environmental impact. *Assessment Tools* National Occupational Standards for Outdoor Guide *Task Checklist: Outdoor Experiences 2, WLD2030–1* *Standard* *Conduct and conclude the trip to a standard of 2 on the rating scale*	80

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MODULE WLD2030: OUTDOOR EXPERIENCES 2 (WILDERNESS EXCURSION) (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • successfully participating in activities while en route that involve personal interaction with the wilderness environment. *Assessment Tool* *Task Checklist: Outdoor Experiences 2, WLD2030–1* *Standard* *Complete four of the activities (as outlined in the task checklist) that involve personal interaction with the wilderness environment to a standard of 2 on the rating scale* • a post-trip assessment that provides observations and personal impressions, and summarizes: – activities well done – problems encountered and suggested solutions – recommendations regarding future trips. *Assessment Tool* *Post-Trip Assessment for Outdoor Experiences 2, WLD2030–2* *Standard* *Achieve a performance rating of 2 in applicable areas of post-trip assessment*	
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction throughout the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
	The student should:	
Trip Planning and Preparation	• establish specific objectives for an outdoor wilderness trip; e.g.: – goals and expectations – length of trip – destination – general schedule and agenda	Hold a pre-trip meeting with students and their parents/guardians prior to the excursion to confirm trip details. Obtain information regarding special needs (e.g., physical limitations, special dietary requirements). Discuss trip expectations.
	• incorporate guidelines for environmental awareness into trip planning and preparation; e.g.: – principles of ecotourism – consideration for carrying capacity of the area – strategies for minimum impact land use	Obtain *Travel Alberta's Adventure Guide* (published annually) for a list of outfitters/ guides available throughout the province. List potential environmental impacts that may result from the trip. Write before and after journal entries to document impact on a campsite.
	• identify and obtain appropriate supplies, equipment and personal gear for the trip; e.g.: – water and food – tents, stoves, axe – first-aid and survival kits – clothing and foot wear – toiletries	List all supplies and equipment to be taken on the trip. Identify items that may have significant environmental impact—note considerations for use or alternatives that would lessen impact.
	• devise plan for weather and seasonal conditions; e.g.: – identify hazards particular to the area – listen to weather and news reports and forecasts	Establish methods of regular and emergency communication, and a contingency plan to be used if regular communication is interrupted.
	• conduct a pre-trip assessment of supplies, equipment and personal gear; e.g.: – compare to trip checklist – assess quality, quantity and condition – assess relative to weather and seasonal conditions – obtain missing and/or specialty items	Compare supplies to checklist. Ensure all equipment is in satisfactory working condition. Pack supplies/equipment in waterproof containers.

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Concept	Specific Learner Expectations	Notes
Trip Planning and Preparation (continued)	*The student should:* • prepare supplies, equipment and personal gear for transportation • devise plan for courses of action to cope with potential emergency situations in the wilderness; e.g.: – extreme weather conditions – fire or flood – injury and illness.	Potential linkages exist with the "First Aid in the Wilderness" certificate course (see Section H: Transitions/Linkages). Outline requirements for survival and first-aid kits.
Conducting and Concluding the Trip	• follow guidelines for safe outdoor travel; e.g.: – inform responsible person of travel plans – follow travel schedule as planned – use orientation and navigational skills – identify potential hazards and take necessary precautions – dress according to mode of travel, weather and season – watch for changes in weather conditions	Be aware of hazards particular to the area. Listen to weather and news reports. Carry survival equipment. Reroute, postpone or cancel trip if conditions threaten safety.
	• set up a wilderness camp site, following guidelines for comfort, safety and least possible environmental impact; e.g.: – select camp site considering: • site exposure and drainage • access to water and firewood • impact on flora and fauna • proximity to potential dangers – erect tent or lean-to – assemble other amenities – protect food from wildlife and spoilage – protect equipment from the elements	Select dry, level ground. Consider potential hazards, including fire, rock slides, avalanches, dead materials close to shelter.
	• follow minimal impact guidelines in establishing: – latrine location and toilet procedures – wash area and procedures – fire site and use – methods of garbage and waste water disposal	Dig deep hole for toilet pit. Provide soil and environmentally friendly substance to decrease odour and speed decomposition. Use biodegradable soap.
	• comply with local, provincial and federal legislation relevant to activities that are undertaken	Consider land use, permits, seasonal restrictions, quotas, etc. Seek clarification if necessary. Report violations.

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Concept	Specific Learner Expectations	Notes
Conducting and Concluding the Trip (continued)	*The student should:* • assume outdoor camp duties on a rotational basis; e.g.: – meal preparation – camp maintenance and hygiene	Have students participate in all areas of preparation, operation and clean-up. Alternate chores during trip.
	• demonstrate practical knowledge and skills in at least three areas relevant to wilderness interaction; e.g.: – plant or animal identification – animal track and scat identification – use of equipment – survival skills	Reference the activities and suggestions provided in *The Art of Seeing and Tracking*. Make plaster casts of animal tracks; examine fur, skulls, bones, nests, etc.
	• monitor the activities of wildlife in the area and take precautions to avoid dangerous situations; e.g.: – observe animal behaviours – observe social patterns/relationships – identify wildlife hazards	Dispose of garbage properly. Store food safely. Maintain safe distance from wildlife.
	• describe evidence of human impact on flora, fauna and/or natural habitat	
	• follow appropriate procedures to break camp; e.g.: – pack supplies, equipment and personal gear – take down shelter – clean site	Do circle tour of camp—look for garbage and misplaced equipment.
	• conclude the wilderness trip and conduct a post-trip assessment; e.g.: – observations and personal impressions – problems encountered – recommendations regarding future trips.	Develop a slide/tape presentation based on the outdoor trip. Consider: • satisfaction with equipment and supplies • suitability of environment or route • inconsistencies between trip and expectations.

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MODULE WLD2040: WILDLIFE SPACES & SPECIES

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Description: Students present the results of research on wildlife spaces and species in Alberta and other parts of the world, and compare different strategies used in wildlife management.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• identify and compare representative ecoregions in Alberta and Canada with similar ecoregions in other parts of the world	• completing a research project on representative wildlife spaces and species in Canada and other parts of the world. Research to involve identification of: – seven major ecoregions of Canada – five World Heritage sites. *Assessment Tool* *Research Process: Representative Wildlife Spaces and Species, WLD2040–1* *Standard* *Complete all components of the research project to a standard of 2* • a teacher-prepared assessment in which the student demonstrates general knowledge of Canada's spaces and species. *Assessment Tool* *Sample Assessment Items: Canada's Spaces and Species, WLD2040–2* *Standard* *Response indicating 80% mastery*	30
• identify and describe threatened or endangered wildlife spaces and species in Alberta and Canada	• identifying and explaining: – the roles of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Canadian Register of Heritage Properties (CRHP) – the five categories of species at risk in Canada – methods used to identify spaces at risk in Canada. *Assessment Tool* *Knowledge/Application Assessment: Endangered Spaces and Species, WLD2040–3* *Standard* *Respond to a standard of 2 on the rating scale*	40

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a presentation or report on a threatened or endangered space or species in Alberta or Canada. Presentation/ report to address: – identification of the space or species through oral/written description and an illustration/map – the range of the species or area of the space as indicated on a map – past and present population numbers and/or changes in boundaries – factors contributing to the present status of the space or species – actions being taken to preserve the space or species. *Assessment Tool* *Presentations/Reports: Intermediate Level, WLDPRE–2* *Standard* *Achieve a minimum rating of 2 on the rating scale for Presentations/Reports*	
• describe and compare local and global strategies for wildlife protection and habitat management	• identifying and comparing roles, responsibilities and strategies relevant to two local, two national and two international programs currently implemented to manage and protect spaces and species. *Assessment Tool* *Knowledge/Application Assessment: Wildlife Management Programs, WLD2040–4* *Standard* *Respond to a standard of 2 on the rating scale*	30
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tool* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

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Concept	Specific Learner Expectations	Notes
Representative Spaces and Species	*The student should:* • identify representative ecoregions in Alberta and Canada, and indicator species found in these regions • illustrate the interdependence of wildlife species within selected ecoregions of Alberta and Canada; e.g.: – food webs – energy chains • identify regulating factors for wildlife species within selected ecoregions of Alberta and Canada; e.g.: – food and water – habitat – predators – carrying capacity – species competition – disease/parasites – other environmental factors • compare representative ecoregions in Alberta and Canada with similar ecoregions in other parts of the world; e.g.: – climate – geography – indicator species.	Suggested teacher resource for background information: *The Nature of Canada: A Primer on Spaces and Species* (Environment Canada). Obtain *Natural Regions of Alberta* map (Alberta Environmental Protection). Outline major ecoregions of Canada on a map. Design a food web for a first-level carnivore found in Alberta. Compare and contrast wildlife in similar ecoregions around the world.
Endangered Spaces and Species	• research policy and factors used to determine if a species or population is endangered • define and give examples of endangered spaces and species • explain how societal actions may cause wildlife spaces and species to become threatened or endangered; e.g.: – human population growth – habitat loss: deforestation and agriculture – unsustainable use of renewable resources – wasteful consumption – pollution	Discuss factors used to determine the status (population health) of wildlife. Consider direct and indirect causes of extinction: • overfishing • habitat loss. Investigate: • The Endangered Spaces Campaign • The Canadian Wilderness Charter • Canadian Council on Ecological Areas • Special Places 2000.

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Concept	Specific Learner Expectations	Notes
Endangered Spaces and Species (continued)	*The student should:* • present the results of research on an endangered wildlife space or species in Alberta or Canada.	See "Focus on Research."
Canada in a Global Context	• explain the role of protected spaces in managing ecosystems at local, national and global levels; e.g.: – parks – wildlife and wilderness areas – migratory bird sanctuaries – ecological reserves – world heritage sites – private landowners – grazing reserves • explain the role of public and private organizations in Canada and other nations with regard to managing and protecting wildlife; e.g.: – government – industry – environmental and other organizations • compare policies/philosophies regarding the sustainable management of wildlife and habitat in Canada with those of other nations and governments • summarize the viewpoints of indigenous peoples in Canada and other nations regarding the management of wildlife spaces and species; e.g.: – traditional wilderness use – current use and future directions.	Discuss the roles of provincial and federal governments in establishing policy for wildlife protection and management. Locate World Heritage sites in Canada and other parts of the world. Interview two or more persons working in support of a protected space. Summarize viewpoints regarding the value of protected spaces in managing wildlife and habitat.

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MODULE WLD2060: INTERACTIONS (WILDLIFE & SOCIETY)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students explain how human populations interact with wildlife, and describe management strategies that enable wildlife and society to coexist.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the effects of human population growth on wildlife	• identifying and explaining three or more situations where changes in human populations have resulted in subsequent changes in wildlife (e.g., number, behaviour, habitat). *Assessment Tool* *Knowledge/Application Assessment: Human Interaction with Wildlife, WLD2060–1* *Standard* *Respond to a standard of 2 on the rating scale* • given a map of Canada, identifying six spaces and/or species that have become threatened or endangered because of human population growth. *Assessment Tool* *Task Checklist for Mapping, WLDMAP* *Standard* *Complete applicable mapping tasks to a standard of 2 on the rating scale*	10
• describe the effects of land use practices on wildlife	• describing different land use practices, and the consequences of each for wildlife. Land use practices to be representative of those used in: – agriculture – energy and mining – forestry – tourism/outdoor recreation – urban planning. *Standard* *Identify 10 different land use practices, and the costs and/or benefits of each to wildlife*	45

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • completing a research project on one technology or land use practice, and its impacts on wildlife and habitat. Research to address: – nature of the technology or land use practice – the wildlife spaces/species affected – benefits and costs for wildlife and society. *Assessment Tool* *Research Process: Impacts of Technology/Land Use, WLD2060–2* *Standard* *Complete all components of research to a standard of 2 on the rating scale* • given a current issue regarding land use and its consequences for wildlife, negotiating and debating the issue while assuming the role of one or more stakeholder groups. *Assessment Tool* *Negotiation and Debate: Intermediate Level, WLDNEG–2* *Standard* *Address criteria in negotiation/debate to a standard of 2 on the rating scale*	
• **explain management strategies that enable wildlife and society to coexist**	• a presentation or report on an organization working to manage interactions between wildlife and society. Presentation/report to address: – goals/objectives of the organization – major stakeholder groups represented – management approaches/techniques – accomplishments of the organization to date – benefits and costs for wildlife and society. *Assessment Tool* *Presentations/Reports: Intermediate Level, WLDPRE–2* *Standard* *Complete presentation/report to a standard of 2 on the rating scale*	45

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a comparison of two existing wildlife management plans with respect to: – goals – approaches taken – outcomes and accomplishments. *Assessment Tool* *Knowledge/Application Assessment: Comparing Wildlife Management Plans, WLD2060–3* *Standard* *Respond to a standard of 2 on the rating scale*	
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
	The student should:	
Human Populations	• describe how wildlife affects the development, movement and size of human societies	Make reference to: • developing nations • historical development • aboriginal groups.
	• explain the effects of human populations and developing technologies on wildlife and habitat	Explore global issues: • tropical rainforest.
	• give examples of the effects of human populations on wildlife and habitat in the local area; e.g.: – changes in habitat – distribution, diversity and abundance of species	Graph local and global population growth over the past 10 years.
	• identify Canadian wildlife spaces and species that have become threatened, endangered and/or extinct as a result of the impact of human populations.	Video/print studies.

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Concept	Specific Learner Expectations	Notes
Land Use Practices	*The student should:* • identify human and societal interactions with wildlife; e.g.: – agriculture – energy and mining – forestry – tourism and outdoor recreation – urban planning • identify the positive and negative aspects of human and societal interactions; e.g.: – food production/habitat loss – employment gains/species extinction • explain positive and negative effects of land use practices on wildlife; e.g.: – deforestation – habitat protection and improvement – agriculture: habitat loss and degradation, zero tillage, shelterbelts, pest management – diversification of land use by farmers: special crops, game ranching – range expansion of some species – habitat fragmentation – management of wildlife populations – urban expansion.	Student-directed research projects concerning specific land use practices and wildlife. Discussion/debate on land use issues. See "Wetland Environments" print materials and videos (Ducks Unlimited).

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Concept	Specific Learner Expectations	Notes
	The student should:	
Managing Interactions	• describe the goals and objectives of different stakeholder groups in managing interactions between wildlife and society; e.g.: – government and nongovernment organizations – business and industry – landowners – individual citizens	Use role playing, debate and panel discussion to examine views of different stakeholder groups. This module provides a good introduction to WLD209: Issues in Wildlife 1.
	• research possible approaches and techniques to manage interactions between wildlife and society; e.g.: – legal approaches – incentive programs – education programs – demonstration programs – land use planning – establishment of policies	Legal approaches: environmental impact assessments/reviews. Incentive Programs: Prairie Farm Rehabilitation Administration (PFRA), Wildlife Habitat Canada. Education programs: District Agriculturists/ Wildlife Biologists, Wetland Conservation Corporation, Alberta North American Waterfowl Management Plan Center (NAWMP), Ducks Unlimited. Demonstration programs: Agriculture Canada demonstrating grazing practices. Establishment of policies: Wildlife Policy for Canada, The Green Plan, Alberta and Canada Wetland Policies.
	• describe the consequences of an existing management plan for wildlife; e.g.: – environmental – social, cultural and economic.	Refer to: • North American Waterfowl Management Plan • Peregrine Falcon Recovery Plan • Swift Fox Rehabilitation Project.

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MODULE WLD2070: HUNTING & GAME MANAGEMENT 2 (FIELD TECHNIQUES/REGULATIONS)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: WLD1070 Hunting & Game Management 1 (Ethics/Game Identification)

Module Description: Students demonstrate knowledge of the basic parts and safe handling of bows, arrows and firearms, and explain the legal responsibilities of the sports person.

Module Parameters: Access to an outdoor wilderness environment and relevant government agencies.

Teacher must be a registered Alberta Conservation and Hunter Education Program Instructor (Alberta Environmental Protection, Natural Resources Service).

Instruction on firearm handling and safety to be provided by person(s) having successfully completed the Canadian Firearms Safety Course (Alberta Justice, Provincial Firearms Program).

Because of the sensitive nature of topics included in this module, a school board motion and parental consent is required prior to module delivery.

Note: Alberta Conservation and Hunter Education Program Student Certificates may be awarded to students who successfully complete Hunting & Game Management 1 and 2, and receive at least 80% on the Alberta Conservation and Hunter Education Examination.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training and certification.

Supporting Module: CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this module, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

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Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• demonstrate knowledge of the basic parts and safe handling of bows, arrows and firearms	• under the supervision of a qualified instructor, demonstrating practical knowledge of: – the basic parts of bows, arrows and firearms – safe handling techniques for bows, arrows and firearms. *Assessment Tool* *Task Checklist: Bows, Arrows and Firearms, WLD2070–1* *Lab Assessment: Outdoor Experiences, WLDLAB* *Standard* *Achieve a performance rating of 3 in all areas on the task checklist and applicable areas of lab assessment*	50
• describe techniques for targeting, handling and dressing game animals in the field	• under the supervision of a qualified instructor, demonstrating (or explaining) practical field techniques for: – maintaining visual acuity and physical fitness – safe and accurate targeting – handling and dressing game animals. *Assessment Tool* *Task Checklist: Field Techniques, WLD2070–2* *Lab Assessment: Outdoor Experiences, WLDLAB* *Standard* – *Achieve a performance rating of:* – *2 in visual acuity/physical fitness* – *3 in targeting* – *2 in handling/dressing game animals* – *3 in applicable areas of lab assessment*	20
• explain personal and legal responsibilities of the sports person	• completing a research project on laws and regulations that: – protect life and property – protect and conserve wildlife – govern behaviour of the sports person. *Assessment Tool* *Research Process: Personal and Legal Responsibilities, WLD2070–3* *Standard* *Complete all components of research to a standard of 2 on the rating scale*	30

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MODULE WLD2070: HUNTING & GAME MANAGEMENT 2 (FIELD TECHNIQUES/ REGULATIONS) (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a summative theory test for the module in which the student demonstrates knowledge of the basic parts and safe handling techniques for bows, arrows and firearms, and personal and legal responsibilities of the sports person. *Assessment Tool* *Sample Test Items: Alberta Conservation and Hunter Education Program, Natural Resources Service (Alberta Fish and Wildlife)* *Standard* *Response indicating 80% mastery*	
• demonstrate basic competencies	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Bows, Arrows and Firearms	*The student should:* • describe the design and construction of bows, arrows and accessories • demonstrate safe practices for bow handling and use • demonstrate appropriate techniques for the care and maintenance of archery equipment • demonstrate the fundamental techniques of bow shooting	**Student safety must be a prime consideration in selecting learning activities within this module.** See *Alberta Conservation and Hunter Education Manual.* Contact any district Natural Resources Service (Fish and Wildlife) Office regarding instructor training workshops.

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Concept	Specific Learner Expectations	Notes
Bows, Arrows and Firearms (continued)	*The student should:* • explain the design, structure and operation of firearms; e.g.: – basic parts and their operation – types of action – function of sights • describe the basic components of rifle and shotgun ammunition • explain appropriate techniques for the care and maintenance of firearms • explain the basic practices of safe rifle and shotgun handling • explain techniques for safe loading and sighting-in a firearm • explain appropriate range procedure for recreational shooting activities • explain safe handling practices for firearms and ammunition in the range, classroom and field.	Stance, grip, aim, release, follow-through. Contact Alberta Hunter Education Film Library. **Appropriate instructor training and certification is essential.** Obtain *Firearms in Canada: A Simple Guide for Canadian Gun Owners* (current edition) for information on relevant firearms legislation in Canada. Stance, mount, aim, trigger control, breath control, follow-through. Plinking, novelty shooting, regulation shooting.
Field Techniques	• describe visual abilities that are important to the sportsperson; e.g.: – distance and nearpoint vision – depth perception – peripheral vision – colour vision • identify factors that may affect visual perception and strategies for improving vision in outdoor environments • explain the role of physical conditioning in safe and comfortable outdoor experiences	Subscribe to *The Alberta Game Warden*. Individual/small group research. See *Alberta Conservation and Hunter Education Manual* (Vision and Physical Fitness). Conduct stretching and endurance activities. Have students assess their own capacity for sustained activity

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Concept	Specific Learner Expectations	Notes
Field Techniques (continued)	*The student should:* • identify vital target areas on game animals; e.g.: – big game – bird game • explain techniques for handling trophy and non-trophy animals in the field; e.g.: – dressing, skinning and plucking – hanging and cooling – preserving hide – transporting.	Consider the use of: • videos • 3-D targets. Emphasis on field experiences. See *Alberta Conservation and Hunter Education Manual*. Loan the video on *Field Dressing* from your local Natural Resources Service (Fish and Wildlife) Office.
Personal and Legal Responsibilities	• explain the legal process, and government agencies in place, to create, change and enforce laws that influence practices of the sports person • identify federal, provincial and municipal laws and regulations that are relevant to a sports person in Alberta; e.g.: – laws that protect life and property – laws that protect and conserve wildlife – laws that govern behaviour of the sports person • interpret specific laws and/or regulations regarding trespassing, access to public and private land, use of firearms and bow hunting • explain responsibilities and procedures to report violations of the law and biological data to appropriate officials.	Invite resource person from a legal profession. Panel discussions and student debates. Oral presentations. Current sources of information include: • *Alberta Wildlife Act* • *Alberta Game Warden* • *Alberta Hunting Regulations*. Encourage students to consider the views of divergent interest groups. Conduct a "mock" tribunal or court case (e.g., a coyote and/or individual on trial).

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MODULE WLD2090: ISSUES IN WILDLIFE 1 (RESEARCH & ANALYSIS)

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Description: Students examine a range of Canadian and global wildlife issues, and present the results of research on one or more issues concerning wildlife in Canada.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• identify a range of Canadian and global wildlife issues	• summarizing a range of current wildlife issues significant in Alberta, Canada and the global context. Each summary to address: – a description of the issue and related positions/stakeholders – factors responsible for creating the issue – major consequences to humans and wildlife – actions being taken to resolve the issue. *Assessment Tool* *Criteria for Summarizing Wildlife Issues, WLD2090–1* *Sample Wildlife Issues, WLD2090–2* *Standard* *Summarize five issues to a standard of 2 on the rating scale*	40
• describe alternatives and consequences associated with one or more issues concerning wildlife in Canada	• completing a research project on one local or national wildlife issue. Research to address: – an explanation of the issue and stakeholders involved – a survey of different viewpoints regarding the issue – a statement of personal position regarding the issue and rationale for the position taken – reference to a related wildlife issue in another part of the world. *Assessment Tool* *Research Process: Issues in Wildlife, WLD2090–3* *Standard* *Complete research to a standard of 2 on the rating scale*	60

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MODULE WLD2090: ISSUES IN WILDLIFE 1 (RESEARCH & ANALYSIS) (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • demonstrate basic competencies.	*Assessment of student achievement should be based on:* • observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Issues in Wildlife	*The student should:* • identify a range of wildlife issues within each of the following categories: – loss and degradation of habitat – subsistence and commercial trade – preservation versus conservation • infer the impact of each of the issues on wildlife, humans and the environment • explain different philosophies, ethics and alternatives regarding each of the issues.	Subscribe to *Update* (a magazine for environmental educators published by FEESA). Conduct a review of magazine articles that focus on local or Canadian wildlife issues (e.g., *Equinox*, *The Alberta Game Warden*).
Wildlife Research	• research a significant wildlife issue in Canada; e.g.: – identify key elements and stakeholders – distinguish among facts, opinions and beliefs – consider implications and consequences • describe different alternatives with respect to the issue, and potential strategies for resolving the issue • explain and defend a position with respect to the issue based on the evidence gathered • compare the wildlife issue with similar issues in other parts of the world • compare the goals and achievements of one or more wildlife conservation groups with respect to the issue.	See research strategies outlined in "Focus on Research." Create a scrapbook containing articles on local and international wildlife issues.

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MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION F: ADVANCED LEVEL

The following pages define the curriculum and assessment standards for the advanced level of Wildlife.

> Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

Module WLD3020: Making a Difference (Protection & Stewardship) F.3
Module WLD3040: Wildlife Research F.9
Module WLD3050: Wildlife Management 1 (Basic Principles) F.13
Module WLD3060: Wildlife Management 2 (Applications) F.17
Module WLD3090: Issues in Wildlife 2 (Negotiation & Debate) F.21

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MODULE WLD3020: MAKING A DIFFERENCE (PROTECTION & STEWARDSHIP)

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Description: Students explain how human populations and wildlife affect each other, describe management strategies that enable humans and wildlife to coexist, and demonstrate individual and shared actions that foster environmental stewardship.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • describe ways in which human populations and wildlife affect each other	*Assessment of student achievement should be based on:* • a visual/multimedia presentation (e.g., poster, scrapbook, videotape, computer design) that profiles interrelationships among wildlife and cultures/societies. Presentation to include one or more examples of the influences of wildlife in each of the following areas: – food, clothing and shelter – spiritual and aesthetic – medicinal – recreation. *Assessment Tool* *Presentations/Reports: Advanced Level, WLDPRE–3* *Standard* *Present and explain 10 scenarios where wildlife has influenced societies/cultures; complete the presentation to a standard of 3 on the rating scale* • identifying and explaining one or more human-wildlife relationships expressed through each of the following: art, literature, dance, music and drama. *Assessment Tool* *Knowledge/Application Assessment: Wildlife and the Arts, WLD3020–1* *Standard* *Respond to a standard of 3 on the rating scale*	20

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • a written composition (e.g., story, poem) inspired by a painting, photograph or sculpture of a wildlife space or species. *Assessment Tool* *Criteria for Evaluating Written Compositions, WLD3020–2* *Standard* *Complete to a standard of 3 on the rating scale*	
• **describe and compare strategies used to manage wildlife spaces and species**	• completing a research project on a wildlife management program working to enhance a wildlife space and/or species. *Assessment Tool* *Research Process: Wildlife Management Programs, WLD3020–3* *Standard* *Complete research to a standard of 3 on the rating scale*	30
• **demonstrate commitment to environmental responsibility, through individual and shared actions**	• negotiating and debating an issue regarding the impact of lifestyle on wildlife and the environment. *Assessment Tool* *Negotiation and Debate: Advanced Level, WLDNEG–3* *Standard* *Address criteria in negotiation/debate to a standard of 3 on the rating scale* • a proposal and rationale (oral, written or visual) for: – a personal action that will affect wildlife in positive ways – a leadership role/community program that will enhance a wildlife space and/or species. *Assessment Tool* *Assessment Criteria: Proposal for Environmental Action, WLDPRO* *Sample Proposals: Wildlife Enhancement, WLDSAM* *Standard* *Complete each proposal to a standard of 3 on the rating scale*	50

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • volunteering five hours of time working in the community to enhance a wildlife space and/or species. *Assessment Tool* *Log/Verification of Volunteer Work, WLDLOG-VOL* *Standard* *Complete all sections of the log/verification for five hours of volunteer work* • a letter written to a government official or environmental organization expressing support or concern regarding the impact of personal/societal actions on wildlife and habitat, and critique of the response received. *Assessment Tool* *Assessment Criteria: Letters of Support or Concern, WLDLET* *Standard* *Complete the letter to a standard of 3 on the rating scale*	
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Our Relationship with Wildlife	*The student should:* • explain past and present influences of wildlife on cultures and societies; e.g.: – food, clothing and shelter – spiritual and aesthetic benefits – medicinal values – recreation and companionship	Examine differing cultural views regarding wildlife: • consumption • aesthetics.

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Concept	Specific Learner Expectations	Notes
Our Relationship with Wildlife (continued)	*The student should:* • identify wildlife relationships expressed through art, literature, dance, music and drama • explain how social attitudes and values regarding wildlife have changed • identify positive and negative impacts of human populations on wildlife.	Visit cultural/ natural museums; e.g.: • Provincial Museum • Glenbow Museum. Visit historic sites/ national and provincial parks.
Management Strategies	• explain how decisions involving Canada's wildlife are a shared responsibility of government agencies and landowners, and are influenced by transboundary concerns • research decision-making processes that affect wildlife and the environment; e.g.: – political – economic – social – scientific • describe two or more wildlife management strategies, and related trade-offs or compromises • compare the contributions of different stakeholder groups that conduct management activities; e.g.: – government and nongovernment organizations – business and industry – landowners – individual citizens • assess the impact of individual attitudes, actions and lifestyle on wildlife and habitat; e.g.: – conservation ethic – consumer practices – recreational choices.	Research international agreements on cooperative wildlife protection plans. Investigate: • *Migratory Bird Act* • *Wildlife Act* • North American Waterfowl Management Plan • Ramsar Convention • CITIES • COSEWIC • World Conservation Strategy.
Environmental Stewardship	• identify an individual action plan for managing wildlife that permits the achievement of social, cultural, economic and environmental goals; e.g.: – individual and shared actions – leadership roles	See *Project Wild* (Section 7: Responsible Human Actions).

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Concept	Specific Learner Expectations	Notes
Environmental Stewardship (continued)	*The student should:* • plan, conduct and assess a school-wide campaign to increase awareness of relationships between lifestyle, wildlife and the environment; e.g.: – establish goals – plan and conduct – assess results • research and describe an issue regarding the impact of lifestyle on wildlife; e.g.: – conduct research – develop a position – participate in debate • identify ways in which individuals can influence public decisions that affect wildlife and the environment; e.g.: – voting – lobbying – seeking office – supporting compatible interest groups.	Plan and implement as a group project. See *The Nature of Canada: A Primer on Spaces and Species* (Chapter 8: Seven Steps to Making a Difference, p. 155).

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MODULE WLD3040: WILDLIFE RESEARCH

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Module Description: Students explain applications of the wildlife research process, and conduct experimental research on a wildlife space or species.

Module Parameters: Sample research articles, a science laboratory and/or outdoor wilderness environment.

Note: This module is a prerequisite for WLD3050: Wildlife Management 1 and WLD3060: Wildlife Management 2. It is recommended that students focus attention on a common theme (i.e., a space or species of particular relevance) throughout WLD3040, WLD3050 and WLD3060.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • identify components of the wildlife research process and their application to a sample wildlife space or species	*Assessment of student achievement should be based on:* • given information regarding scientific research conducted on a wildlife space or species, identifying major components of the research process as they apply to the space or species. *Assessment Tool* *Assessment Criteria: Components of Scientific Research, WLD3040–1* *Standard* *Identify components and applications of scientific research within the context of one space or species to a standard of 3 on the rating scale* • defining concise research problems for each of five wildlife topics suited to scientific research. *Assessment Tool* *Assessment Criteria: Defining Research Problems, WLD3040–2* *Standard* *Define five research problems to a standard of 3 on the rating scale*	30

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• plan and conduct experimental research on a wildlife space or species	• planning and conducting scientific research on one wildlife space or species. Research to include: – a definition of a problem – a review of existing information – a proposal for data collection – data collection and presentation – data analysis and assessment – conclusions – recommendations. *Assessment Tool* *Scientific Research: Spaces and Species, WLD3040–3* *Standard* *Complete research to a standard of 3 on the rating scale*	70
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Research Process	*The student should:* • identify and describe major stages and steps in the research process; e.g.: – defining a research problem – conducting a literature review – organizing information – proposing a plan for data collection – collecting data – analyzing/assessing data – drawing conclusions and making recommendations based on data – communicating results	See "Focus on Research." Review articles on research provided in scientific journals; e.g.: • *Canadian Field Naturalist* • *Journal of Wildlife Management* • *Arctic.* Consider the use of community support networks; e.g.: • Natural Resources Service (Fish and Wildlife) • Agriculture Research Stations • Environment Canada.

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Concept	Specific Learner Expectations	Notes
Research Process (continued)	*The student should:* • explain applications of the research process in finding answers to questions about wildlife spaces or species • relate the research process to an existing piece of wildlife research.	Refer to Canadian Wildlife Services project reports.
Research Project	• identify a problem or question regarding a wildlife space or species; e.g.: – growth rate of a plant – bird preference to seed type – effect of light on plant growth – habitat preference of a mammal – overwintering of species – reproductive rate of composting worms	Limit, define and refine.
	• outline sources for background information about the problem or question; e.g.: – library – computer – interview	Written review and summary of relevant literature.
	• propose a plan for conducting research related to the problem or question; e.g.: – experimental design – logistics – funding and partnerships	Submit a written plan.
	• describe baseline and specific data using a variety of information gathering techniques; e.g.: – sampling and surveys – observation – measurement and estimation – experimentation	Consider: • species count • observation of behaviours • experimental controls, groups and variables.
	• analyze and interpret data that is gathered, and formulate further questions	Use data tables, graphs, anecdotal reports, photographic records, videotape.
	• draw conclusions related to the problem or question; e.g.: – recommendations – management actions – further research	Consider: • logical relationships • significant elements and implications • potential sources of bias • limitations of data.
	• communicate the results of research through written reports and oral presentations.	Display boards.

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MODULE WLD3050: WILDLIFE MANAGEMENT 1 (BASIC PRINCIPLES)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD3040 Wildlife Research

Module Description: Students describe the functions and processes of wildlife management, and identify issues that may affect the development of a wildlife management plan.

Module Parameters: Access to government and community agencies responsible for the sustainable management of spaces and species.

Note: This module is a prerequisite for WLD3060: Wildlife Management 2. It is recommended that students focus attention on a common theme (i.e., a space or species of particular relevance) throughout WLD3040, WLD3050 and WLD3060.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the functions of wildlife management	• a teacher-prepared assessment in which the student demonstrates knowledge of conservation, preservation and the function of wildlife management. *Assessment Tool* *Sample Assessment Items: Wildlife Management, WLD3050–1* *Standard* *Response indicating 70% mastery*	20
• identify and explain major components of a wildlife management plan	• given information regarding a current plan for managing a wildlife space or species, identifying major components of the plan and applying each to the management of the space or species. *Assessment Tool* *Knowledge/Application Assessment: Components of Wildlife Management, WLD3050–2* *Standard* *Identify components and applications of wildlife management within the context of one space or species to a standard of 3 on the rating scale*	40

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • completing a research project on the management history of one space or species in Alberta. *Assessment Tool* *Research Process: A Wildlife Management History, WLD3050–3* *Standard* *Complete research to a standard of 3 on the rating scale*	
• **describe alternatives and consequences associated with current issues involving wildlife management**	• given access to information regarding current issues in wildlife management: – identifying different perspectives/points of view relevant to three current issues – critically analyzing one of the issues. *Assessment Tool* *Issue Analysis: Wildlife Management WLD3050–4* *Standard* *Identify and analyze issues to a standard of 3 on the rating scale* • given a complex issue regarding the management of a wildlife space or species: – negotiating and debating the issue while assuming the role of one or more stakeholder groups – preparing a position paper on the issue that outlines a recommended plan of action. *Assessment Tool* *Negotiation and Debate: Advanced Level, WLDNEG–3* *Position Paper: Wildlife Management, WLD3050-5* *Standard* *Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale*	40
• **demonstrate basic competencies.**	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

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Concept	Specific Learner Expectations	Notes
Functions of Wildlife Management	*The student should:* • describe wildlife management as a process that ensures long-term viability of spaces, species and ecosystems • explain how wildlife management involves the preservation of endangered spaces and species, and conservation of all other spaces and species • analyze relationships between wildlife research and wildlife management.	See: • A Wildlife Policy for Canada • The Status of Wildlife in Alberta • *Project Wild* (Section 4: Management and Conservation). Compare preservation with conservation. Examine ways of surveying the demographics of specific species: • migratory species (international) • indigenous species (local).
The Management Process	• explain how wildlife management programs and policies are developed through political, social, economic and scientific decisions • identify and describe basic steps involved in developing a wildlife management plan; e.g.: – state goals and objectives – collect data and conduct research – gather government and nongovernment input – consider alternatives, consequences and potential conflicts – select a course of action – implement the action plan – monitor and evaluate outcomes – make recommendations and revisions.	Investigate current management plans: • North American Waterfowl Management Plan • Peregrine Falcon Recovery Plan • Vermilion Lakes Area Plan • Kootenay National Park Management Plan. See: • *Prairie Conservation: A Landowner's Guide*.

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Concept	Specific Learner Expectations	Notes
Issues in Wildlife Management	*The student should:* • analyze a variety of issues and problems affecting the management of wildlife spaces and species; e.g.: – preservation versus conservation – problems with an "ecosystem management" approach – political boundaries and the species/people involved – legislation versus no legislation – public perception of wildlife management – the value of wildlife – environmental impact assessment plans and legislation • explain how philosophies and goals of different wildlife management practices are sometimes incompatible with each other, and how conflicts and trade-offs may occur.	Conduct interviews with naturalists, conservationists, preservationists, wildlife managers and/or stakeholder groups (see "Guidelines for Interviewing People," *Project Wild*, p. 436). Student presentations and debates.

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MODULE WLD3060: WILDLIFE MANAGEMENT 2 (APPLICATIONS)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD3050 Wildlife Management 1 (Basic Principles)

Module Description: Students develop and present a plan for managing a wildlife space or species.

Module Parameters: Access to government and community agencies responsible for the sustainable management of spaces and species.

Note: It is recommended that students focus attention on a common theme (i.e., a space or species of particular relevance) throughout WLD3040, WLD3050 and WLD3060.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• explain the basic principles of wildlife management	• explaining the general objectives of wildlife management. *Assessment Tool* *Knowledge/Application Assessment: Principles of Wildlife Management, WLD3060–1* *Standard* *Respond to a standard of 3 on the rating scale* • the results of an interview with a wildlife manager regarding wildlife management principles. *Assessment Tool* *Interview Techniques: Wildlife Manager, WLD3060–2* *Standard* *Apply interview techniques to a standard of 3 on the rating scale*	20
• develop and present a wildlife management plan	• a summary and analysis of critical components included in an existing plan for managing a wildlife space or species. Summary and analysis to address: – data collection and research techniques – management strategies/tools in use – outcomes/results and suggested revisions. *Assessment Tool* *Summary and Analysis: A Wildlife Management Plan, WLD3060–3* *Standard* *Complete summary and analysis to a standard of 3 on the rating scale*	80

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:* • developing and presenting a plan for managing a wildlife space or species. Management plan to address: – the concerns of three or more stakeholder groups – management goals and priorities – research strategies/actions – maps and monitoring strategies. *Assessment Tool* *Assessment Criteria: Developing a Wildlife Management Plan, WLD3060–4* *Presentations/Reports: Advanced Level, WLDPRE–3* *Standard* *Develop and present the plan to a standard of 3 on the rating scale*	
• demonstrate basic competencies.	• observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Basic Principles	*The student should:* • explain sustainable management within the context of wildlife spaces and species • explain how decisions involving wildlife in Canada are made by local, provincial and federal government agencies and private landowners • identify local opportunities for consultation and public involvement in wildlife management decisions.	Suggested resources include: • *A Wildlife Policy for Canada* • *The Status of Alberta Wildlife* • *Project Wild Activity Guide* • *Alberta Conservation and Hunter Education.* Field studies. Interviews. Oral Presentations.

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Concept	Specific Learner Expectations	Notes
Planning Process	*The student should:* • identify short- and long-term goals for the management of a wildlife space or species • identify scientific, economic and social factors that need to be addressed through the management plan • describe the views of different stakeholders and resolve conflicts that may arise; e.g.: – recreational – environmental – aboriginal – commercial • show that consultation with other resource users and public involvement has been incorproated into the planning process • identify alternative means of achieving the management goals, and select preferred alternatives • describe permits, licences or other legal agreements that may be required • devise a set of actions and present the management plan; e.g.: – a general description and background – long-term management objectives – short-term management objectives – proposed standards and guidelines – a schedule of short-term management activities • prepare a map to accompany and elaborate upon the management plan; e.g.: – boundaries – land cover and other resources in the area – physical features – history of past development – road access – proposed development activities • describe techniques for monitoring the management plan to ensure that goals are being achieved.	See sample management plans described in: • *North American Waterfowl Management Plan* • *Prairie Conservation: A Landowner's Guide.* Consider species that are at risk OR problem wildlife. Discuss management tools required to increase or decrease a population: • environmental manipulation • direct population control. Examine concerns regarding biological management tools: • B.t.k. treatments for spruce budworm • specific insects that eat purple loosestrife. Tables and graphs. Diagrams. Webbing (mind maps). Display boards. Oral presentations. Evaluation. Forecasting.

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MODULE WLD3090: ISSUES IN WILDLIFE 2 (NEGOTIATION & DEBATE)

Level: Advanced

Theme: Management and Conservation

Prerequisite: WLD2090 Issues in Wildlife 1 (Research & Analysis)

Module Description: Students examine the complexity of wildlife issues affecting Alberta and the rest of the world, and demonstrate individual and shared actions that foster sustainable management of wildlife.

Module Parameters: Access to relevant government and community resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • identify and compare social, economic and environmental perspectives regarding a range of current wildlife issues	*Assessment of student achievement should be based on:* • analyzing alternatives and consequences associated with each of five wildlife issues. Alternatives and consequences to address relevant social, economic and environmental perspectives. *Assessment Tool* *Issue Analysis: Alternatives and Consequences, WLD3090–1* *Standard* *Analyze five issues to a standard of 3 on the rating scale* • a critique of one newspaper/magazine article regarding a wildlife issue. Critique to address: – range of viewpoints/biases evident – recommended course of action. *Assessment Tool* *Guidelines to Critiquing Media Information, WLDMED* *Standard* *Critique one article to a standard of 3 on the rating scale*	30

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• compare and contrast issues and trends involving wildlife in Canada with similar issues and trends in other parts of the world	• completing a research project on one international wildlife issue. Research to address: – an explanation of the issue and stakeholders involved – a survey of different viewpoints regarding the issue – a statement of personal position regarding the issue and rationale for the position taken – suggested strategies/actions for dealing with the issue – reference to a related wildlife issue in Canada and/or Alberta. *Assessment Tool* *Research Process: A Wildlife Issue, WLD3090–2* *Standard* *Complete research to a standard of 3 on the rating scale*	30
• present a plan of action for the sustainable management of wildlife	• given a current issue regarding wildlife conservation and management: – negotiating and debating the issue while assuming the role of one or more stakeholder groups – preparing and presenting a position paper that outlines a responsible course of action. *Assessment Tool* *Negotiation and Debate: Advanced Level, WLDNEG–3* *Position Paper: Wildlife Conservation and Management, WLD3090–3* *Standard* *Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale* • a proposal and rationale (oral, written or visual) for: – personal action that will support wildlife conservation and management – a leadership role/community program that will support wildlife conservation and management. *Assessment Tool* *Assessment Criteria: Proposal for Environmental Action, WLDPRO* *Sample Proposals: Wildlife Enhancement, WLDSAM* *Standard* *Complete each proposal to a standard of 3 on the rating scale*	40

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Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • **demonstrate basic competencies.**	*Assessment of student achievement should be based on:* • observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Learner Expectations	Notes
Issues Involve Alternatives	*The student should:* • describe past and present trends in the recreational and/or commercial use of a wildlife space or species • describe ways in which stakeholder groups make use of the judicial, legislative and regulatory systems in working toward their objectives • analyze differing points of view regarding how, when and to what degree the space or species should be used • analyze issues concerning the scientific, biological, aesthetic, economic and/or intrinsic value of the space or species.	See *Project Wild* (Section 6: Trends, Issues and Consequences). Written/oral critique of relevant periodical literature and videos. Independent research on an issue of personal interest.
Global Issues and Trends	• compare and contrast a Canadian issue involving wildlife with a similar issue in other parts of the world; e.g.: – habitat loss – distribution, diversity and abundance of species	Review magazine articles that focus on Canadian and global wildlife issues (e.g., *Equinox*, *Canadian Geographic*, *International Wildlife*).

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Concept	Specific Learner Expectations	Notes
Global Issues and Trends (continued)	*The student should:* • research global impacts of the recreational and/or commercial use of a wildlife space or species; e.g.: – social and cultural – economic – environmental • infer the long-range effects of acquiring, protecting, improving and restoring wildlife habitat in Canada and other parts of the world.	Independent research on topic of global significance. Student debates. Forecasting.
Personal and Shared Actions	• compare and contrast different philosophies, ethics and alternatives regarding how best to ensure its health and viability of a wildlife space or species • evaluate the goals and objectives of one or more wildlife conservation groups • identify and describe a global issue regarding the consumptive and/or non-consumptive use of wildlife; e.g.: – conduct research – develop a position – participate in debate • devise a plan for the use of wildlife; e.g.: – conduct research – generate alternatives – agree to a workable solution • demonstrate responsible and ethical actions in relation to wildlife and the environment; e.g.: – personal actions – leadership roles.	Group projects involving discussions, consensus building, debate and panel discussion. See *Project Wild* (Section 7: Responsible Human Actions). Participation in group process is essential. Implement a course of action suggested through group discussion and consensus building.

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WILDLIFE

SECTION G: ASSESSMENT TOOLS

The following pages comprise background information and strategies for assessing student achievement using the assessment tools that are listed in Sections D, E and F of this Guide.

This section of the Guide to Standards and Implementation has been designed to provide a common base of understanding about the level of competencies students are expected to demonstrate to successfully complete a module. The goal is to establish assessment standards for junior and senior high school students that are fair, credible and challenging.

These tools will assist teachers throughout the province to more consistently assess student achievement. The purpose of expanding on the assessment standards is to:

- increase confidence among students, parents, business/industry and post-secondary that students can demonstrate the competencies specified in the modules they have completed
- encourage fairness and equity in how students' efforts are judged
- enable learners to focus effort on key learnings
- support teachers and community partners in planning and implementing CTS.

These tools were validated during the optional stage of CTS implementation.

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ASSESSING STUDENT ACHIEVEMENT IN CTS

The CTS assessment standards assess two basic forms of competency:

- What can a student ***do***?
  - **make** a product (e.g., wood bowl, report, garment)
  - **demonstrate** a process
    - strand-related competencies (e.g., keyboarding, hair cutting, sewing techniques, lab procedures)
    - basic competencies (e.g., resource use, safety procedures, teamwork).

- What does a student ***know***?
  - knowledge base needed to demonstrate a competency (link theory and practice).

CTS Defines *Summative* Assessment Standards

The assessment standards and tools defined for the CTS modules, referenced in Sections D, E and F of this Guide, focus on the final (or summative) assessment of student achievement.

Assessment throughout the learning period (formative assessment) will continue to evaluate how students are progressing. Teachers direct and respond to students' efforts to learn—setting and marking tasks and assignments, indicating where improvement is needed, sending out interim reports, congratulating excellence, etc.

Teachers will decide which instructional and assessment strategies to apply during the formative learning period. As formative and summative assessment are closely linked, some teachers may wish to modify the tools included in this section to use during the instructional process. Teachers may also develop their own summative assessment tools as long as the standards are consistent with the minimum expectations outlined by Alberta Education.

Grading and Reporting Student Achievement

When a student can demonstrate ALL of the exit-level competencies defined for the module (module learner expectations), the teacher will designate the module as "successfully completed." The teacher will then use accepted grading practices to determine the percentage grade to be given for the module—a mark not less than 50%.

The time frame a teacher allows a student to develop the exit-level competency is a local decision. NOTE: The Senior High School Handbook specifies that students must have access to 25 hours of instruction for each credit. Students may, however, attain the required competencies in less time and may proceed to other modules.

Teachers are encouraged to consult their colleagues to ensure grading practices are as consistent as possible.

High school teachers may wish to refer to "Directions for Reporting Student Achievement in CTS" for information on how to use the CTS course codes to report the credits that students have earned to Alberta Education. (Copies of this document have been forwarded to superintendents and senior high school principals.)

Components of Assessment Standards in CTS

The following components are included in each module:

- **module learner expectations** (in the shaded left column of the module) define the exit-level competencies students are expected to achieve to complete a module. Each MLE defines and describes critical behaviours that can be measured and observed. The student must meet the standard specified for **ALL** MLEs within a module to be successful.

- **suggested emphasis** (in the right column of the module) provides a guideline for the

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relative significance of each MLE and can be used to organize for instruction.

- **criteria and conditions** (in the middle column of the module) set the framework for the assessment of student competency, specifying the minimum standard for performance and including a reference to assessment tools, where appropriate.

  Criteria define the behaviours that a student must demonstrate to meet the designated standard. For example, the criteria could describe the various techniques that must be demonstrated when using a tool, and/or describe the minimum components of a project the student must complete.

  Conditions outline the specifications under which a student's competency can be judged. For example, the conditions could specify whether the assessment should be timed or not, or if the student should be allowed to access support resources or references.

  Standard may be defined by (1) assessment tools, which are referenced in this section (or sometimes in approved learning resources) and/or (2) "illustrative examples" of student work, if appropriate.

  Assessment Tools included in this section of the Guide tend to be of two types:

  - tools generic to a strand or to the entire CTS program; e.g., a standard five-point rating scale is used in all strands. Other generic tools include assessing reports and presentations and lab safety checklists. *(Names of these tools include the strand code [e.g., "INF" for Information Processing] and a code for the type of tool [e.g., "TDENT" for Text-Data Entry].)*
  - tools specific to a module; e.g., assessment checklist for assessing a venture plan in Enterprise and Innovation or a checklist for sketching, drawing and modelling in Design Studies. *(Names of these tools include the module code; e.g., "INF1010-1" indicating that it is the first module-specific tool used in Information Processing Module 1010.)*

Development and Validation Processes

The "Criteria and Conditions" and "Suggested Emphasis" columns have been validated with extensive input from teachers, professional associations/contacts and post-secondary institutions. The goal was to prepare well-structured assessment standards and related assessment tools that:

- establish an appropriate level of challenge and rigour
- relate directly to the type of learning described in the curriculum standard
- are easy to understand
- are efficient to implement
- can provide a consistent measure of what was expected to be measured.

As students and teachers work with the assessment standards and tools, it is expected that levels of performance will increase as more and more students are able to achieve the minimum standard. Therefore, the assessment standards and related tools will continue to be monitored, and revised as necessary to ensure appropriate levels of rigour and challenge, and successful transitions for students as they leave high school and enter the workplace or related post-secondary programs.

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ASSESSING STUDENT ACHIEVEMENT IN WILDLIFE

Assessing student achievement in Wildlife involves gathering information about what a student knows and is able to do, and comparing this information with learning outcomes defined by the curriculum (i.e., module learner expectations, assessment criteria and conditions, illustrative examples/reference sets).

Summative assessment for each module in Wildlife will focus attention on process (e.g., how the student approaches/performs particular tasks) and product (e.g., quality characteristics of the task performed, item produced or service rendered). While there are also knowledge-based components of learning within each module, a greater emphasis has been suggested for learning that involves the transfer/application of knowledge in task- or service-oriented situations.

Assessment Strategies and Tools

A variety of tools have been provided for your reference and use. In the development of the assessment materials there has been an attempt to keep it as simple as possible while also providing guidance and assistance to teachers. The tools are intended to help you assess students' work as accurately and consistently as possible by stating standards of performance for elements felt to be important within the curriculum as a whole or in specified modules. They also provide standards for basic competencies students should be able to demonstrate while engaging in learning.

The tools that have been developed are intended to be used as summative assessment tools. Depending on the way the classroom is organized, they may be used when the student has indicated he or she is ready for the final assessment or by the entire class at the end of the learning period.

Tools Generic to CTS

The generic rating scale has been used to develop several of the tools in CTS. A generic framework for assessing the processes CTS students apply in completing a task or project is included in this section. It is based on the notion that students will follow a process as they work through their projects and that this process has a number of sequential steps. The framework shows the increasing expectations from the introductory, to the intermediate, to the advanced level.

Some assessment tools, e.g., Presentations/Reports (CTSPRE) are generic to CTS and have been included in this section. In assessing MLEs at the introductory level, PRE100 would be used. Since the content portion of this tool must relate specifically to an MLE in a module, the tool has been adapted, labelled and included under Assessment Tools Specific to the Wildlife strand, WLD, and to the module, e.g., WLD1010 (module number), and the tool number (within the module), e.g., WLD1010–1.

The Basic Competencies Reference Guide can be used directly as a checklist or as a guide to assess these competencies through other teacher-developed tools.

Tools Generic to Wildlife

Assessment tools generic to Wildlife have been developed to assist in assessing student performance in key areas of learning across the scope and sequence. The generic tools communicate minimum performance standards for:

- conducting research, preparing reports and making presentations
- demonstrating practical skills in outdoor survival and environmental ethics
- conducting laboratory and field-based investigations
- analyzing, negotiating and debating wildlife- and environment-related issues
- proposing personal/shared actions that foster environmental citizenship
- exploring career trends and conducting searches of employment opportunities.

The generic tools, referenced as applicable throughout each module in the conditions and criteria column, are identified with a six- or nine-letter code (e.g., WLDMAP, WLDLOG–VOL). Generic tools developed for use in modules at a

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specific level are further identified by a number (e.g., WLDPRE–1 for introductory, WLDPRE–2 for intermediate, WLDPRE–3 for advanced).

Tools Specific to Wildlife Modules

Other assessment tools have been developed to assess competencies that are unique to specific modules within the Wildlife strand. These "module-specific" tools, also referenced in the criteria and conditions column for each module, are identified by the module number followed by a tool number (e.g., WLD1070–1 for the first module-specific tool in module WLD1070).

In some instances, authorized learning resources have been identified as assessment tools for specific modules. These learning resources usually contain test banks and other assessment strategies considered effective in establishing minimum standards for achievement.

Where appropriate, "Illustrative Examples" or "Sample Assignments/Projects" have been provided in a further attempt to communicate realistic expectations and acceptable standards of achievement.

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BASIC COMPETENCIES REFERENCE GUIDE

The chart below outlines basic competencies that students endeavour to develop and enhance in each of the CTS strands and modules. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each module. In general, there is a progression of task complexity and student initiative as outlined in the Developmental Framework*. **As students progress through Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages**. Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using in reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- maintaining a student portfolio.

Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Managing Learning			
☐ comes to class prepared for learning	☐ →	☐ →	☐ →
☐ follows basic instructions, as directed	☐ follows instructions, with limited direction	☐ follows detailed instructions on an independent basis	☐ →
	☐ sets goals and establishes steps to achieve them, with direction	☐ sets clear goals and establishes steps to achieve them	☐ demonstrates self-direction in learning, goal setting and goal achievement
☐ acquires specialized knowledge, skills and attitudes	☐ applies specialized knowledge, skills and attitudes in practical situations	☐ transfers and applies specialized knowledge, skills and attitudes in a variety of situations	☐ transfers and applies learning in new situations; demonstrates commitment to lifelong learning
☐ identifies criteria for evaluating choices and making decisions	☐ identifies and applies a range of effective strategies for solving problems and making decisions	☐ uses a range of critical thinking skills to evaluate situations, solve problems and make decisions	☐ thinks critically and acts logically to evaluate situations, solve problems and make decisions
☐ uses a variety of learning strategies	☐ explores and uses a variety of learning strategies, with limited direction	☐ selects and uses effective learning strategies	☐ →
		☐ cooperates with others in the effective use of learning strategies	☐ provides leadership in the effective use of learning strategies
Managing Resources			
☐ adheres to established timelines; uses time/schedules/planners effectively	☐ creates and adheres to timelines, with limited direction; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines on an independent basis; prioritizes task; uses time/schedules/planners effectively	☐ creates and adheres to detailed timelines; uses time/schedules/planners effectively; prioritizes tasks on a consistent basis
☐ uses information (material and human resources), as directed	☐ accesses and uses a range of relevant information (material and human resources), with limited direction	☐ accesses a range of information (material and human resources), and recognizes when additional resources are required	☐ uses a wide range of information (material and human resources) in order to support and enhance the basic requirement
☐ uses technology (facilities, equipment, supplies), as directed, to perform a task or provide a service	☐ uses technology (facilities, equipment, supplies), as appropriate, to perform a task or provide a service, with minimal assistance and supervision	☐ selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis	☐ recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies)
☐ maintains, stores and/or disposes of equipment and materials, as directed	☐ maintains, stores and/or disposes of equipment and materials, with limited assistance	☐ maintains, stores and/or disposes of equipment and materials on an independent basis	☐ demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation			
☐ participates in problem solving as a process	☐ identifies the problem and selects an appropriate problem-solving approach, responding appropriately to specified goals and constraints	☐ thinks critically and acts logically in the context of problem solving	☐ identifies and resolves problems efficiently and effectively
☐ learns a range of problem-solving skills and approaches			
☐ practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ applies problem-solving skills to a directed or a self-directed activity, by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ transfers problem-solving skills to real-life situations, by generating new possibilities ☐ prepares implementation plans ☐ recognizes risks	☐ identifies and suggests new ideas to get the job done creatively, by: – combining ideas or information in new ways – making connections among seemingly unrelated ideas – seeking out opportunities in an active manner

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Stage 1— *The student:*	**Stage 2**— *The student:*	**Stage 3**— *The student:*	**Stage 4**— *The student:*
Communicating Effectively			
☐ uses communication skills; e.g., reading, writing, illustrating, speaking	☐ communicates thoughts, feelings and ideas to justify or challenge a position, using written, oral and/or visual means	☐ prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned arguments	☐ negotiates effectively, by working toward an agreement that may involve exchanging specific resources or resolving divergent interests
☐ uses language in appropriate context	☐ uses technical language appropriately	☐ encourages, persuades, convinces or otherwise motivates individuals	☐ negotiates and works toward a consensus
☐ listens to understand and learn	☐ listens and responds to understand and learn	☐ listens and responds to understand, learn and teach	☐ listens and responds to understand, learn, teach and evaluate
☐ demonstrates positive interpersonal skills in selected contexts	☐ demonstrates positive interpersonal skills in many contexts	☐ demonstrates positive interpersonal skills in most contexts	☐ promotes positive interpersonal skills among others
Working with Others			
☐ fulfills responsibility in a group project	☐ →	☐ seeks a team approach, as appropriate, based on group needs and benefits; e.g., idea potential, variety of strengths, sharing of workload	☐ leads, where appropriate, mobilizing the group for high performance
☐ works collaboratively in structured situations with peer members	☐ cooperates to achieve group results	☐ works in a team or group: – encourages and supports team members – helps others in a positive manner – provides leadership/followership as required – negotiates and works toward consensus as required	☐ understands and works within the context of the group
☐ acknowledges the opinions and contributions of others in the group	☐ maintains a balance between speaking, listening and responding in group discussions ☐ respects the feelings and views of others		☐ prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility			
Attendance			
☐ demonstrates responsibility in attendance, punctuality and task completion	☐ →	☐ →	☐ →
Safety			
☐ follows personal and environmental health and safety procedures	☐ recognizes and follows personal and environmental health and safety procedures	☐ establishes and follows personal and environmental health and safety procedures	☐ transfers and applies personal and environmental health and safety procedures to a variety of environments and situations
☐ identifies immediate hazards and their impact on self, others and the environment	☐ identifies immediate and potential hazards and their impact on self, others and the environment	☐ →	☐ →
☐ follows appropriate/emergency response procedures	☐ →	☐ →	☐ →
			☐ demonstrates accountability for actions taken to address immediate and potential hazards
Ethics			
☐ makes personal judgements about whether or not certain behaviours/actions are right or wrong	☐ assesses how personal judgements affect other peer members and/or family; e.g., home and school	☐ assesses the implications of personal/group actions within the broader community; e.g., workplace	☐ analyzes the implications of personal/group actions within the global context
			☐ states and defends a personal code of ethics as required

★**Developmental Framework**			
• *Simple task* • *Structured environment* • *Directed learning*	• *Task with limited variables* • *Less structured environment* • *Limited direction*	• *Task with multiple variables* • *Flexible environment* • *Self-directed learning, seeking assistance as required*	• *Complex task* • *Open environment* • *Self-directed/self-motivated*

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GENERIC RATING SCALE

SCALE	RUBRIC STATEMENT **(included in assessment tool/statements in *italics* are optional)** ***The student:***	IS TASK/ PROJECT COMPLETED?	PROBLEM SOLVING: STUDENT INITIATIVE VS TEACHER DIRECTION/ SUPPORT	USE OF TOOLS, MATERIALS, PROCESSES	*STANDARDS OF QUALITY/ PRODUCTIVITY*	*TEAMWORK LEADERSHIIP*	*SERVICE CLIENT/ CUSTOMER*
4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals. Analyzes and provides effective client/customer services beyond expectations.*	Exceeds defined outcomes.	Plans and solves problems effectively and creatively in a self-directed manner.	Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.	*Quality, particularly details and finishes, and productivity are consistent and exceed standards.*	*Leads others to contribute team goals.*	*Analyzes and provides effective client/customer services beyond expectations.*
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.*	Meets defined outcomes.	Plans and solves problems in a self-directed manner.	Tools, materials and/or processes are selected and used efficiently and effectively.	*Quality and productivity are consistent.*	*Works cooperatively and contributes ideas and suggestions that enhance team effort.*	*Analyzes and provides effective client/customer services.*
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.*	Meets defined outcomes.	Plans and solves problems with limited assistance.	Tools, materials and/or processes are selected and used appropriately.	*Quality and productivity are reasonably consistent.*	*Works cooperatively to achieve team goals.*	*Identifies and provides customer/client services.*
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively. Provides a limited range of customer/client services.*	Meets defined outcomes.	Follows a guided plan of action.	A limited range of tools, materials and/or processes are used appropriately.	*Quality and productivity are reasonably consistent.*	*Works cooperatively.*	*Provides a limited range of customer/client services.*
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.	Has not completed defined outcomes.		Tools, materials and/or processes are used inappropriately.			

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INTRODUCTORY	INTERMEDIATE	ADVANCED
The student:	*The student:*	*The student:*
Preparation and Planning	**Preparation and Planning**	**Preparation and Planning**
• accurately describes an issue on which people disagree	• accurately describes an issue on which people disagree, explaining areas of disagreement	• accurately describes an issue on which people disagree, explaining specific causes of disagreement
• poses an important question regarding the issue	• poses one or more thoughtful questions regarding the issue	• poses thoughtful questions regarding the issue
• accesses basic in-school/community information sources regarding the issue	• accesses a range of relevant in-school/community resources	• accesses a range of relevant information sources and recognizes when additional information is required
• uses one or more information-gathering techniques	• uses a range of information-gathering techniques	• demonstrates resourcefulness in collecting data
Analyzing Perspectives	**Analyzing Perspectives**	**Analyzing Perspectives**
• clarifies different points of view regarding the issue; *e.g., social, economic, environmental*	• categorizes different points of view regarding the issue; *e.g., cultural, ethical, economic, environmental, health-related*	• categorizes different points of view regarding the issue; *e.g., cultural, ethical, economic, environmental, health-related, scientific, political*
• states a position on the issue and logical reasons for adopting that position	• states a position on the issue and logical reasons for adopting that position	• states a position on the issue and insightful reasons for adopting that position
• states an opposing position on the issue and logical reasons for adopting that position	• states two or more opposing positions on the issue and logical reasons for adopting each position	• states three or more opposing positions on the issue and thoughtful reasons for adopting each position
• identifies sources of conflict among different positions	• describes interrelationships among different perspectives/points of view	• analyzes interrelationships among different perspectives/points of view
• distinguishes between fact and fiction/opinion/theory	• determines accuracy/currency/reliability of information and ideas	• recognizes underlying bias/assumptions/values in information and ideas
Collaboration and Teamwork	**Collaboration and Teamwork**	**Collaboration and Teamwork**
• shares work appropriately among group members	• shares work appropriately among group members	• shares work appropriately among group members
• respects the views of others	• respects and considers the views of others	• respects and considers the views of others
	• negotiates solutions to problems	• negotiates with sensitivity solutions to problems
Evaluating Choices/Making Decisions	**Evaluating Choices/Making Decisions**	**Evaluating Choices/Making Decisions**
• identifies useful alternatives regarding the issue	• identifies important and appropriate alternatives regarding the issue	• describes in detail important and appropriate alternatives regarding the issue
• establishes criteria for assessing each alternative; *e.g., social, economic, environmental*	• establishes knowledge- and value-based criteria for assessing each alternative; *e.g., social, economic, environmental*	• establishes knowledge- and value-based criteria for assessing each alternative; *e.g., social, economic, environmental*
• selects an appropriate alternative based on established criteria	• selects an appropriate alternative by showing differences among choices	• selects an appropriate and useful alternative by showing differences among choices
• reflects on strengths/weaknesses of decisions by considering consequences	• assesses strengths/weaknesses of decisions by considering consequences	• assesses strengths/weaknesses of decisions by considering consequences and implications
• communicates information in a logical sequence to justify choices/decisions made	• communicates ideas in a logical sequence with supporting detail to justify choices/decisions made	• communicates thoughts/feelings/ideas clearly to justify choices/decisions made

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INTRODUCTORY	INTERMEDIATE	ADVANCED
The student:	*The student:*	*The student:*
Management • prepares self for task • organizes and works in an orderly manner • carries out instructions accurately • uses time effectively	**Management** • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively • adheres to routine procedures	**Management** • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively in a logical sequence • displays leadership in adhering to routine procedures • attempts to solve problems prior to requesting help
Teamwork • cooperates with group members • shares work appropriately among group members	**Teamwork** • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems	**Teamwork** • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication skills
Equipment and Materials • selects and uses appropriate equipment/materials • follows safe procedures/techniques • weighs and measures accurately • returns clean equipment/materials to storage areas	**Equipment and Materials** • selects and uses appropriate equipment/materials • models safe procedures/techniques • weighs and measures accurately • practises proper sanitation procedures • minimizes waste of materials • advises of potential hazards and necessary repairs	**Equipment and Materials** • selects and uses equipment/materials independently • demonstrates concern for safe procedures/techniques • weighs and measures accurately and efficiently • practises proper sanitation procedures • minimizes waste of materials • anticipates potential hazards and emergency response
Investigative Techniques • gathers and applies information from at least one source • makes predictions that can be tested • sets up and conducts experiments to test a prediction • • distinguishes between manipulated/responding variables • obtains results that can be used to determine if some aspect of the prediction is accurate • summarizes important experimental outcomes	**Investigative Techniques** • gathers and applies information from a variety of sources • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • identifies and explains manipulated/responding variables • obtains accurate results that confirm/reject the prediction • summarizes and applies experimental outcomes	**Investigative Techniques** • uses relevant information to explain observations • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • analyzes relationships among manipulated/responding variables • obtains accurate results that confirm/reject prediction and answer related questions • summarizes, applies and evaluates experimental outcomes

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INTRODUCTORY	INTERMEDIATE	ADVANCED
The student:	*The student:*	*The student:*
Preparation and Planning	**Preparation and Planning**	**Preparation and Planning**
• accurately describes an issue on which people disagree	• accurately describes an issue on which people disagree, explaining areas of disagreement	• accurately describes an issue on which people disagree, explaining specific causes of disagreement
• poses an important question regarding the issue	• poses one or more thoughtful questions regarding the issue	• poses thoughtful questions regarding the issue
• accesses basic in-school/community information sources regarding the issue	• accesses a range of relevant in-school/community resources	• accesses a range of relevant information sources and recognizes when additional information is required
• uses one or more information-gathering techniques	• uses a range of information-gathering techniques	• demonstrates resourcefulness in collecting data
Analyzing Perspectives	**Analyzing Perspectives**	**Analyzing Perspectives**
• states a position on the issue and logical reasons for adopting that position	• states a position on the issue and logical reasons for adopting that position	• states a position on the issue and insightful reasons for adopting that position
• explains why the issue is important by presenting examples of possible consequences	• explains why the issue is important by presenting examples of possible consequences	• explains why the issue is important by presenting examples of possible consequences and implications
• clarifies different points of view regarding the issue; *e.g., social, economic, environmental*	• categorizes different points of view regarding the issue; *e.g., cultural, ethical, economic, environmental, health-related*	• categorizes different points of view regarding the issue; *e.g., cultural, ethical, economic, environmental, health-related, scientific, political*
• distinguishes between fact and fiction/opinion/theory	• determines accuracy/currency/reliability of information and ideas	• recognizes underlying bias/assumptions/values in information and ideas
Collaboration and Teamwork	**Collaboration and Teamwork**	**Collaboration and Teamwork**
• works with a range of peer members	• works with a range of peer members	• works with a wide range of peer members
• shares information/opinions/suggestions through group discussion	• shares information/opinions/suggestions, maintaining a balance between speaking and listening	• shares information/opinions/suggestions, maintaining a balance between speaking and listening
• listens to and respects the views of others	• listens to and respects the views of others, requesting clarification as necessary from other group members	• listens to and respects the views of others, requesting clarification as necessary from other group members
Negotiating and Debating	**Negotiating and Debating**	**Negotiating and Debating**
• presents a convincing argument in logical sequence supporting a position adopted on the issue	• presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance	• presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance and backing each with sound evidence
• provides a relevant response to opposing arguments	• provides a relevant and convincing response to opposing arguments	• provides a relevant and convincing rebuttal to opposing arguments
• speaks clearly so the argument can be understood	• speaks clearly without hesitation so the argument can be understood	• speaks clearly without hesitation so the argument can be understood by all listeners
• establishes a shared understanding of key alternatives and consequences relevant to the issue	• negotiates a shared agreement on preferred alternatives relevant to the issue	• negotiates a shared agreement on preferred alternatives by resolving divergent points of view

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INTRODUCTORY	INTERMEDIATE	ADVANCED
The student:	*The student:*	*The student:*
Preparation and Planning	**Preparation and Planning**	**Preparation and Planning**
• sets goals and follows instructions accurately	• sets goals and describes steps to achieve them	• sets goals and describes steps to achieve them
• responds to directed questions and follows necessary steps to find answers	• uses personal initiative to formulate questions and find answers	• uses personal initiative to formulate questions and find answers
• accesses basic in-school/community information sources	• accesses a range of relevant in-school/community resources	• accesses a range of relevant information sources and recognizes when additional information is required
• interprets and organizes information into a logical sequence	• interprets, organizes and combines information into a logical sequence	• interprets, organizes and combines information in creative and thoughtful ways
• records information accurately, using correct technical terms	• records information accurately with appropriate supporting detail and using correct technical terms	• records information accurately, using appropriate technical terms and supporting detail
• uses time effectively	• plans and uses time effectively	• plans and uses time effectively, prioritizing tasks on a consistent basis
	• gathers and responds to feedback regarding approach to task and project status	• assesses and refines approach to task and project status based on feedback and reflection
Presentation	**Presentation**	**Presentation**
• demonstrates effective use of at least one medium of communication:	• demonstrates effective use of at least two communication media:	• demonstrates effective use of a variety of communication media:
e.g., Written: *spelling, punctuation, grammar, basic format*	*e.g., Written:* *spelling, punctuation, grammar, format (formal/informal)*	*e.g., Written:* *spelling, punctuation, grammar, format (formal/informal, technical/literary)*
Oral: *voice projection, body language*	*Oral:* *voice projection, body language, appearance*	*Oral:* *voice projection, body language, appearance, enthusiasm, evidence of prior practice*
Audio-Visual: *techniques, tools*	*Audio-Visual:* *techniques, tools, clarity*	*Audio-Visual:* *techniques, tools, clarity, speed and pacing*
• uses correct grammatical convention and technical terms through proofreading/editing	• maintains acceptable grammatical and technical standards through proofreading and editing	• maintains acceptable grammatical and technical standards through proofreading and editing
• provides an introduction that describes the purpose of the project	• provides an introduction that describes the purpose and scope of the project	• provides an introduction that describes the purpose and scope of the project
• communicates information in a logical sequence	• communicates ideas into a logical sequence with sufficient supporting detail	• communicates thoughts/feelings/ideas clearly to justify or challenge a position
• states a conclusion based on a summary of facts	• states a conclusion by synthesizing the information gathered	• states a conclusion by analyzing and synthesizing the information gathered
• provides a reference list of three or more basic information sources	• provides a reference list that includes five or more relevant information sources	• gives evidence of adequate research through a reference list including seven or more relevant information sources

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INTRODUCTORY	INTERMEDIATE	ADVANCED
The student:	*The student:*	*The student:*
Preparation and Planning • sets goals and follows instructions accurately • adheres to established timelines • responds to directed questions and follows necessary steps to find answers • uses time effectively	**Preparation and Planning** • sets goals and establishes steps to achieve them • creates and adheres to useful timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively	**Preparation and Planning** • sets clear goals and establishes steps to achieve them • creates and adheres to detailed timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively, prioritizing tasks on a consistent basis
Information Gathering and Processing • accesses basic in-school/community information sources • uses one or more information-gathering techniques • interprets and organizes information in a logical sequence • records information accurately, using correct technical terms • distinguishes between fact and fiction/opinion/theory • responds to feedback when current approach is not working	**Information Gathering and Processing** • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques • interprets, organizes and combines information into a logical sequence • records information accurately with appropriate supporting detail and using correct technical terms • determines accuracy/currency/reliability of information sources • gathers and responds to feedback regarding approach to the task	**Information Gathering and Processing** • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data • interprets, organizes and combines information in creative and thoughtful ways • records information accurately with appropriate supporting detail and using correct technical terms • recognizes underlying bias/assumptions/values in information sources • assesses and refines approach to the task and project status based on feedback and reflection
Collaboration and Teamwork • cooperates with group members • shares work appropriately among group members	**Collaboration and Teamwork** • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems	**Collaboration and Teamwork** • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication and leadership skills
Information Sharing • demonstrates effective use of one or more communication media; *e.g., written, oral, audio-visual* • communicates information in a logical sequence • uses correct grammatical convention and technical terms • cites three or more basic information sources	**Information Sharing** • demonstrates effective use of two or more communication media; *e.g., written, oral, audio-visual* • communicates ideas in a logical sequence with sufficient supporting detail • maintains acceptable grammatical and technical standards • cites five or more relevant information sources	**Information Sharing** • demonstrates effective use of a variety of communication media; *e.g., written, oral, audio-visual* • communicates thoughts/feelings/ideas clearly to justify or challenge a position • maintains acceptable grammatical and technical standards • gives evidence of adequate information gathering by citing seven or more relevant information sources

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instruction accurately
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ uses time effectively

Content

Content (continued)

Presenting/Reporting

- ☐ demonstrates effective use of one or more communication media:
  e.g., <u>Written:</u> *spelling, punctuation, grammar, basic format*
  <u>Oral:</u> *voice projection, body language*
  <u>Audio-Visual:</u> *techniques, tools*
- ☐ uses correct grammatical convention and technical terms through proofreading/editing
- ☐ provides an introduction that describes the purpose of the project
- ☐ communicates information in a logical sequence
- ☐ states a conclusion based on a summary of facts
- ☐ provides a reference list of three or more basic information sources

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ access a range of relevant in-school/community resources
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ plans and uses time effectively
- ☐ gathers and responds to feedback regarding approach to task and project status

Content

Content (continued)

Presenting/Reporting

- ☐ demonstrates effective use of at least two communication media:
  e.g., <u>Written:</u> *spelling, punctuation, grammar, format (formal/informal)*
  <u>Oral:</u> *voice projection, body language, appearance*
  <u>Audio-Visual:</u> *techniques, tools, clarity*
- ☐ maintains acceptable grammatical and technical standards through proofreading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates ideas into a logical sequence with sufficient supporting detail
- ☐ states a conclusion by synthesizing the information gathered
- ☐ provides a reference list that includes five or more relevant information sources

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ accesses and refines approach to task and project status based on feedback and reflection.

Content

Content (continued)

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media:
  e.g., <u>Written:</u> *spelling, punctuation, grammar, format (formal/informal, technical/literary)*
  <u>Oral:</u> *voice projection, body language, appearance, enthusiasm, evidence of prior practice*
  <u>Audio-Visual:</u> *techniques, tools, clarity, speed and pacing*
- ☐ maintains acceptable grammatical and technical standards through proofreading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including seven or more relevant information sources

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING
Preparation and Planning	N/A 0 1 2 3 4
Information Gathering and Processing	N/A 0 1 2 3 4
Content	N/A 0 1 2 3 4
Collaboration and Teamwork	N/A 0 1 2 3 4
Information Sharing	N/A 0 1 2 3 4

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing
- ☐ accesses basic in-school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/opinion/theory
- ☐ responds to feedback when current approach is not working

Content
- ☐ describes one or more career opportunities within the field; e.g.:
  - labour-based
  - technical
  - professional

Content (continued)
- ☐ identifies and describes occupations relevant to one or more career opportunities; e.g.:
  - nature of the occupation
  - duties of the employee
- ☐ provides a survey of current employment statistics relevant to one or more careers; e.g.:
  - types of occupations
  - number of employees
- ☐ identifies entry requirements and training programs relevant to one or more careers; e.g.:
  - entrance requirements and competencies
  - type of training programs
- ☐ assesses current and future employment opportunities and trends; e.g.:
  - local and national needs
  - opportunities for advancement

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing
- ☐ demonstrates effective use of one or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical/technical conventions
- ☐ cites basic information sources

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	N/A	0	1	2	3	4
Information Gathering and Processing	N/A	0	1	2	3	4
Content	N/A	0	1	2	3	4
Collaboration and Teamwork	N/A	0	1	2	3	4
Information Sharing	N/A	0	1	2	3	4

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content
- ☐ describes one or more career opportunities within the field; e.g.:
  - labour-based
  - technical
  - professional
- ☐ identifies and describes occupations relevant to one or more career opportunities; e.g.:
  - nature of the occupation
  - duties of the employee
  - workplace conditions
- ☐ provides a survey of current employment statistics relevant to one or more careers; e.g.:
  - types of occupations
  - number of employees
  - employment trends
- ☐ identifies entry requirements and training programs relevant to one or more careers; e.g.:
  - entrance requirements and competencies
  - type and extent of training programs
- ☐ assesses current and future employment opportunities and trends; e.g.:
  - local, national and international needs
  - opportunities for advancement and/or career change

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing
- ☐ demonstrates effective use of two or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites relevant information sources

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING
Preparation and Planning	N/A 0 1 2 3 4
Information Gathering and Processing	N/A 0 1 2 3 4
Content	N/A 0 1 2 3 4
Collaboration and Teamwork	N/A 0 1 2 3 4
Information Sharing	N/A 0 1 2 3 4

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 **meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.**

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content
- ☐ describes one or more career opportunities within the field; e.g.:
  - labour-based
  - technical
  - professional
- ☐ identifies and describes occupations relevant to one or more career opportunities; e.g.:
  - nature of the occupation
  - duties of the employee
  - workplace conditions
  - salary/wages and employee benefits

Content (continued)
- ☐ provides a survey of current employment statistics relevant to one or more careers; e.g.:
  - types of occupations
  - number of employees
  - employment trends
- ☐ identifies entry requirements and training programs relevant to one or more careers; e.g.:
  - entrance requirements and competencies
  - type and extent of training programs
  - post-secondary institutions
- ☐ assesses current and future employment opportunities and trends; e.g.:
  - local, national and international needs
  - opportunities for advancement and/or career change
  - opportunities for self-employment and entrepreneurship

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing
- ☐ demonstrates effective use of a variety of communication media:
  e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing relevant information sources

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Negotiating and Debating	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ accurately describes an issue on which people disagree
- ☐ poses an important question regarding the issue
- ☐ accesses basic in-school/community information sources regarding the issue
- ☐ uses one or more information-gathering techniques

Analyzing Perspectives
- ☐ states a position on the issue and logical reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences
- ☐ clarifies different points of view regarding the issue: *e.g., social, economic, environmental*
- ☐ distinguishes between fact and fiction/ opinion/theory

Collaboration and Teamwork
- ☐ works with a range of peer members
- ☐ shares information/opinions/suggestions through group discussion
- ☐ listens to and respects the views of others

Negotiating and Debating
- ☐ presents a convincing argument in logical sequence supporting a position adopted on the issue
- ☐ provides a relevant response to opposing arguments
- ☐ speaks clearly so the argument can be understood
- ☐ establishes a shared understanding of key alternatives and consequences relevant to the issue

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Negotiating and Debating	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ accurately describes an issue on which people disagree, explaining areas of disagreement
- ☐ poses one or more thoughtful questions regarding the issue
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques

Analyzing Perspectives

- ☐ states a position on the issue and logical reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences
- ☐ categorizes different points of view regarding the issue: *e.g., cultural, ethical, economic, environmental, health-related*
- ☐ determines accuracy/currency/reliability of information and ideas

Collaboration and Teamwork

- ☐ works with a range of peer members
- ☐ shares information/opinions/suggestions, and maintains a balance between speaking and listening
- ☐ listens to and respects the views of others, and requests clarification as necessary from other group members

Negotiating and Debating

- ☐ presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance
- ☐ provides a relevant and convincing response to opposing arguments
- ☐ speaks clearly without hesitation so the argument can be understood
- ☐ negotiates a shared agreement on preferred alternatives relevant to the issue

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Negotiating and Debating	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ accurately describes an issue on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding the issue
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Analyzing Perspectives

- ☐ states a position on the issue and insightful reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences and implications
- ☐ categorizes different points of view regarding the issue: *e.g., cultural, ethical, economic, environmental, health-related, scientific, political*
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork

- ☐ works with a wide range of peer members
- ☐ shares information/opinions/suggestions, and maintains a balance between speaking and listening
- ☐ listens to and respects the views of others, and requests clarification as necessary from other group members

Negotiating and Debating

- ☐ presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance and backing each with sound evidence
- ☐ provides a relevant and convincing rebuttal to opposing arguments
- ☐ speaks clearly without hesitation so the argument can be understood by all listeners
- ☐ negotiates a shared agreement on preferred alternatives by resolving divergent points of view

REFLECTIONS/COMMENTS:

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LAB ASSESSMENT: Outdoor Experiences **WLDLAB**

Student Name: _____

Module(s): WLD103 WLD107 WLD108 WLD203 WLD207 WLD304

ACTIVITY/ TASK:						
DATE:						
Management	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Teamwork	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Equipment and Materials	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Environmental Ethics	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
TOTAL						

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

ASSESSMENT CRITERIA:

The student:

Management

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carry out instructions accurately
- ☐ plans and uses time in a logical sequence
- ☐ attempts to solve problems prior to requesting help
- ☐ _____
- ☐ _____

Teamwork

- ☐ cooperates with group members
- ☐ shares tasks/tools appropriately among peers
- ☐ negotiates solutions to problems
- ☐ displays effective communication skills
- ☐ _____
- ☐ _____

Equipment and Materials

- ☐ selects appropriate equipment and materials
- ☐ handle/uses equipment and materials safely
- ☐ demonstrates concern for safe procedures/techniques
- ☐ cleans/maintains/stores equipment in a safe manner
- ☐ keeps work/study environment clean and organized
- ☐ advises of immediate hazards and necessary repairs
- ☐ _____
- ☐ _____

Environmental Ethics

- ☐ protects flora and fauna
- ☐ chooses environmentally friendly materials
- ☐ minimizes generation of waste materials
- ☐ follows accepted practices for disposing of wastes
- ☐ protects/manages water supply
- ☐ _____

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RATING	ASSESSMENT CRITERIA
	The student:
4 3 2 1 0	**Preparation and Planning** ☐ identifies a specific issue regarding wildlife and/or habitat ☐ talks to others in order to clarify ideas ☐ accesses basic in-school/community resources regarding the issue ☐ identifies appropriate individuals/agencies to contact ☐ establishes a position on the issue ☐ _____
4 3 2 1 0	**Writing the Letter** ☐ clearly states a position on the issue and a rationale for adopting that position ☐ considers the implications of various approaches for dealing with the issue ☐ cites references to support information/views ☐ maintains an appropriate tone of communication ☐ requests a response to the letter ☐ uses correct grammatical and technical conventions ☐ demonstrates proofreading and editing skills ☐ _____
4 3 2 1 0	**Critiquing the Response** ☐ identifies important elements of the response: – acknowledgement of support or concern – statement of position and rationale – reference to supporting information/views – comments regarding future options/alternatives ☐ assesses quality of the response based on: – logical development of ideas – quality/quantity of supporting information and views – tone of communication ☐ suggests possible improvements to the response and original letter ☐ _____

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Technical Components	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A

STANDARD IS 1 FOR INTRODUCTORY LEVEL MODULES, 2 FOR INTERMEDIATE LEVEL MODULES, AND 3 FOR ADVANCED LEVEL MODULES

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions
- ☐ responds to directed questions and/or follows necessary steps to find answers
- ☐ uses time effectively
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information logically
- ☐ transfers and/or extrapolates data from print and visual sources to create maps
- ☐ _____

Technical Components
- ☐ prepares an outline of the mapped area to scale
- ☐ provides an appropriate map title
- ☐ records relevant location data
- ☐ provides a map legend that explains:
  - map symbols
  - map scale
- ☐ organizes use of space; e.g.:
  - map size in relationship to paper size
  - use of borders
  - position of legend

Technical Components (continued)
- ☐ demonstrated appropriate use of colour, shading and/or patterns
- ☐ produces a document free of wrinkles and smudges
- ☐ maintains appropriate technical standards through proof-reading and editing; e.g.:
  - spelling
  - legibility
- ☐ _____

Information Sharing
- ☐ communicates map content through oral presentation
- ☐ demonstrates ability to use map overlays in presentation
- ☐ poses questions based on information provided in map
- ☐ _____

Collaboration and Teamwork
- ☐ shares work appropriately among group members
- ☐ respects the views of others
- ☐ negotiates solutions to problems
- ☐ _____

REFLECTIONS/COMMENTS

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GUIDE TO CRITIQUING MEDIA INFORMATION — WLDMED

Student Name:	Date:
Media Source:	
Method of Presentation:	
Issue/Topic:	

GOALS/OBJECTIVES OF THE MEDIA PRESENTATION

SUMMARY OF INFORMATION PRESENTED (e.g., topic/issue, position taken, supporting detail, implications/consequences)

QUALITY/OBJECTIVITY OF INFORMATION PRESENTED (e.g., bias-balance, currency/reliability, logic/reasoning)

PERSONAL IMPACT OF MEDIA PRESENTATION

Yes	No	ASSESSING QUALITY/OBJECTIVITY
☐	☐	*The media presentation:* clearly describes a topic/issue/position taken with sufficient supporting detail
☐	☐	demonstrates bias-balance in the manner of presentation
☐	☐	makes reference to different points of view (e.g., social, economic, environmental)
☐	☐	distinguishes between fact and fiction/opinion/theory
☐	☐	references current and reliable sources for information and ideas
☐	☐	draws valid conclusions based on analysis/synthesis of information
☐	☐	

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

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REFLECTION GUIDE FOR OUTDOOR EXPERIENCES — WLDREF–OUT

JOURNAL ENTRY:	#1	#2	#3	#4	#5
DATE:					
Individual/ Group Preparedness	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Cooperation and Teamwork	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Responsibility and Safety	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Environmental Ethics	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
TOTAL:					

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

CRITERIA FOR REFLECTION

The student:

Individual/Group Preparedness
- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ identifies/assembles outdoor gear appropriate to the task
- ☐ uses time effectively
- ☐ _____
- ☐ _____

Cooperation and Teamwork
- ☐ works with a range of peer members
- ☐ shares work appropriately among group members
- ☐ considers the ideas/suggestions of others
- ☐ _____
- ☐ _____

Responsibility and Safety
- ☐ selects and uses appropriate equipment/materials
- ☐ follows safe procedures/techniques
- ☐ anticipates and advises of potential hazards
- ☐ practises proper sanitation procedures
- ☐ _____
- ☐ _____

Environmental Ethics
- ☐ uses environmentally friendly materials
- ☐ picks up garbage and carries everything out that is carried in
- ☐ avoids ecologically sensitive areas
- ☐ demonstrates techniques for protecting water supply
- ☐ _____
- ☐ _____

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LOG/VERIFICATION OF VOLUNTEER WORK **WLDLOG–VOL(a)**

Student Name: _____ Module: _____ Supervisor: _____

Volunteer Service Provided: _____ Date: _____

Volunteer Site/Location: _____

Time Volunteered: _____

Description of Volunteer Service:

(a) goals/tasks established by supervisor _____

_____

_____

(b) tasks completed by volunteer: _____

_____

_____

Observations/Insights Gained from Volunteer Work:

_____

_____

_____

Comments: _____

_____

_____
(Student's Signature)

_____ _____
(Supervisor's Signature) (Supervisor's Phone Number)

Volunteer Service Provided: _____ Date: _____

Volunteer Site/Location: _____

Time Volunteered: _____

Description of Volunteer Service:

(a) goals/tasks established by supervisor _____

_____

_____

(b) tasks completed by volunteer: _____

_____

_____

Observations/Insights Gained from Volunteer Work:

_____

_____

_____

Comments: _____

_____

_____
(Student's Signature)

_____ _____
(Supervisor's Signature) (Supervisor's Phone Number)

STANDARD: The student completes all sections of the log/verification for five hours of volunteer work.

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PREPARATION AND PLANNING	YES	NO	N/A
The student:			
• identifies personal and environmental goals for volunteer work	☐	☐	
• prepares a list of potential environmental, industry and/or professional organizations to contact regarding volunteer work	☐	☐	☐
• contacts an organization regarding desire to volunteer, sharing personal information through interview and/or resume	☐	☐	☐
• obtains satisfactory placement for volunteer work	☐	☐	
• establishes a schedule of dates and times for volunteer work	☐	☐	
• identifies and adheres to school policies/ procedures regarding off-campus activities	☐	☐	

VERIFYING AND REFLECTING	YES	NO	N/A
The student:			
• submits a log of tasks undertaken for each volunteer site and/or work experience (see Part II)	☐	☐	
• performs volunteer tasks in a satisfactory manner (see Part II)	☐	☐	
• provides a brief written summary of personal observations/impressions regarding the volunteer experience: – contribution of tasks undertaken to environmental stewardship – problems encountered and suggested solutions – recommendations regarding future volunteer experiences	☐	☐	

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

REFLECTIONS / COMMENTS

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STUDENT LOG OF ACTIVITIES

Student's Name:

_____

Sponsoring Organization:

_____

Supervisor's Name/Position: _____

Date(s) of Volunteer Work:

_____

Time(s)/Duration of Volunteer Work:

_____

_____

___

Volunteer Tasks Undertaken:

_____ _____

Student's Signature **Date**

VERIFICATION BY SUPERVISOR

The student:

- ☐ follows instructions and adheres to guidelines
- ☐ uses time effectively
- ☐ demonstrates concern for safe procedures and techniques
- ☐ anticipates and advises of potential hazards
- ☐ works cooperatively with other group members.

Supervisor's Comments:

_____ _____

Supervisor's Signature **Date**

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JOURNAL ENTRY:	#1	#2	#3	#4	#5
DATE:					
Preparation and Planning	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Comprehension and Analysis	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Evaluation and Decision-Making	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Presenting and Reporting	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
TOTAL:					

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTION CRITERIA

The student:

Preparation and Planning
- ☐ sets goals and follow instructions accurately
- ☐ establishes a schedule of activities for completing each journal entry
- ☐ accesses in-school/community sources of information
- ☐ plans and uses time effectively

Comprehension and Analysis
- ☐ considers the impact of one or more personal attitudes, actions and/or lifestyles on wildlife and the environment
- ☐ identifies relevant social, economic and/or environmental perspectives
- ☐ explains potential sources of conflict regarding personal attitudes, actions and/or lifestyle:
  e.g., Who? What? Where? Why?

Evaluation and Decision Making
- ☐ balances information and values
- ☐ demonstrates respect for and consider the views of others
- ☐ considers alternatives for environmental citizenship on the basis of their consequences and implications for wildlife and environment
- ☐ reflects on strengths of personal actions and lifestyle within the context of environmental responsibility, and suggest areas that need improvement

Presenting and Reporting
- ☐ uses correct grammatical convention and technical terms through proofreading/editing
- ☐ communicates information and ideas clearly in a logical sequence
- ☐ provides an introduction that describes the purpose of the journal entry
- ☐ states a conclusion based on a summary of information and ideas

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ASSESSMENT CRITERIA: Proposal for Environmental Action **WLDPRO**

PROPOSAL	RATIONALE	INTENDED OUTCOMES
1. Personal Action		
2. Leadership Role		

Rating Scale

The student:

4 demonstrates a thorough understanding of the need for action. Problems are solved independently in effective and creative ways. The rationale and outcomes are based on analysis of data and supported with sufficient detail.

3 demonstrates an understanding of the need for action. Issues are effectively addressed in a self-directed manner. The rationale and outcomes are based on analysis of data and supported with some detail.

2 demonstrates a general understanding of the need for action. Issues are addressed with guidance. The rationale and outcomes are based on limited data and detail.

1 demonstrates partial understanding of the need for action. Attempts a proposal but the rationale and/or outcomes are general or unsupported.

0 fails to understand the need for action or does not attempt a proposal.

DIRECTIONS

THE STUDENT PROVIDES TWO PROPOSALS FOR ENVIRONMENTAL ACTION - ONE BASED ON PERSONAL/INDIVIDUAL ACTION, THE OTHER INVOLVING A LEADERSHIP ROLE. EACH PROPOSAL TO BE SUPPORTED WITH A RATIONALE AND INTENDED OUTCOMES.

STANDARD

EACH PROPOSAL TO BE COMPLETED TO A STANDARD OF 1 FOR INTRODUCTORY MODULES, 2 FOR INTERMEDIATE MODULES, AND 3 FOR ADVANCED MODULES

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Sample Themes for Local Wildlife Enhancement

Imagine that you have just been asked to develop plans for a local wildlife enhancement program in your community. Your task involves:

- proposing a plan for the enhancement program
- educating members of the community so they will want to become involved in supporting the program.

Themes you may wish to consider for your proposal in support of wildlife enhancement include:

- establishing burrowing owl habitat on abandoned farms
- creating a birdhouse trail in a local natural area
- restoring a 1 acre plot of tall prairie grass
- monitoring invertebrate life in a local pond
- creating nesting platforms for Canada geese in a wetland area
- creating upland nesting cover for waterfowl
- developing an information package on wildlife in a local area
- managing the local habitats of endangered and threatened species
- acquiring land for wildlife conservation purposes
- promoting the value of shelterbelts with private landowners
- supporting a campaign against the trading of bear gall bladders
- supporting a campaign against illegal trade in tiger bone/rhino horn
- promoting the value of old-growth forests in Canada
- creating an awareness display on wildlife for Earth Week
- creating a community/school display depicting the aesthetic value of wildlife.

Guidelines for Developing the Enhancement Proposal

Your first task must be to propose a plan for the enhancement program. The plan must include specific enhancement goals, a rationale for the enhancement program, and effective strategies for accomplishing the task.

Your second task involves communicating the enhancement program. This may be done through an oral presentation, by creating a brochure, through a newspaper article, or by making a videotape.

Criteria for Assessing the Enhancement Proposal

The student:

- ☐ proposes a community program designed to enhance a wildlife space and/or species
- ☐ states clear goals/objectives for the enhancement program
- ☐ provides a rationale for the enhancement program, citing relevant background information that led to its development
- ☐ identifies major strategies/actions to be employed in accomplishing enhancement goals
- ☐ identifies and explain laws, acts or formal agreements relevant to the proposal
- ☐ presents the proposal in a convincing way so as to encourage members of the community to become involved in the program
- ☐ demonstrates originality and creativity in developing and presenting the enhancement proposal.

Rating Scale

The student:

4 demonstrates a thorough understanding of the need for action. Problems are solved independently in effective and creative ways. The rationale and outcomes are based on analysis of data and supported with sufficient detail.

3 demonstrates an understanding of the need for action. Issues are effectively addressed in a self-directed manner. The rationale and outcomes are based on analysis of data and supported with some detail.

2 demonstrates a general understanding of the need for action. Issues are addressed with guidance. The rationale and outcomes are based on limited data and detail.

1 demonstrates partial understanding of the need for action. Attempts a proposal but the rationale and/or outcomes are general or unsupported.

0 fails to understand the need for action or does not attempt a proposal.

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KNOWLEDGE/APPLICATION ASSESSMENT: A Definition for Wildlife — WLD1010–1

Assessment Criteria and Conditions:

- a comprehensive definition of wildlife based on:
  - current wildlife policies established for Alberta and Canada
  - personal experience with and response to wildlife.

Suggested Reference(s):

- *A Wildlife Policy for Canada*
- *The Status of Wildlife in Alberta*
- *Project Wild*

STANDARD: Address <u>six</u> of the criteria for a definition of wildlife to a minimum standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using more precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete the task, or is unable to provide a suitable response.

N/A Not applicable

Guiding Principles for a Definition of Wildlife*

The following principles may be used as an outline to guide research for a definition of wildlife.

- Wildlife is an integral part of the environment in which Canadians live and a key indicator of the health of that environment.
- Wildlife has intrinsic, social, cultural and economic values.
- Wildlife is a major source of food and a vital part of the cultures and economies of many aboriginal peoples.
- All Canadians have stewardship responsibility for wildlife. Governments are accountable for its management. Aboriginal peoples have a special role in wildlife management and in certain regions are also accountable for it.
- The maintenance of viable natural populations of wildlife always takes precedence over their use by people.
- The way in which land, water and air are used strongly affects the quality and quantity of habitat upon which wildlife depends.
- All Canadians share the costs of conserving wildlife. Those whose actions result in additional costs should bear them.
- Basic and applied scientific research are essential to our understanding of ecosystems and their wildlife components.
- Effective conservation of wildlife relies upon a well-informed and involved public.

* Wildlife Ministers' Council of Canada. *A Wildlife Policy for Canada*, Canadian Wildlife Service, 1990.

Criteria for a Definition of Wildlife

A comprehensive definition of wildlife should:

- ☐ incorporate a personal response to wildlife based on experience
- ☐ distinguish between domesticated and non-domesticated (wild) species
- ☐ include wild organisms <u>and</u> their habitat; e.g.:
  - plants and animals
  - native and non-native species
- ☐ make reference to species traditionally regarded as wildlife (e.g., fishes, amphibians, reptiles, birds and mammals), as well as to wild plants, invertebrates and micro-organisms
- ☐ demonstrate awareness that wildlife is an integral part of the environment
- ☐ cite instances where wildlife has intrinsic social, cultural and economic value
- ☐ relate symbols of wildlife to our culture
- ☐ identify one or more situations where there are differing opinions regarding whether a species is considered wildlife for not
- ☐ _____
- ☐ _____

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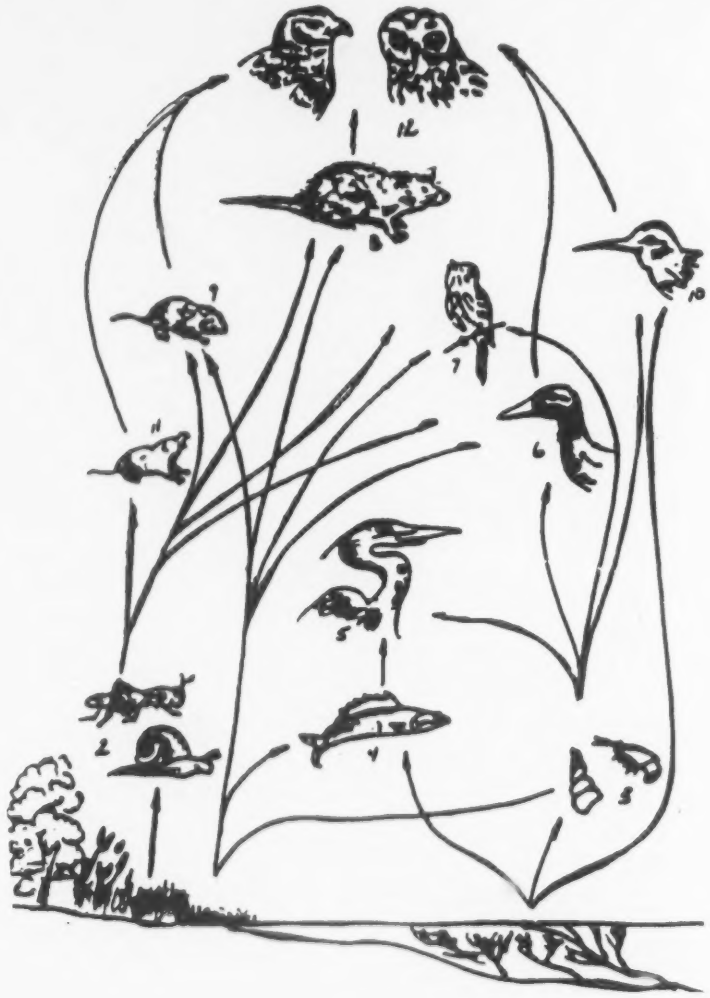
Here is an example of a food web in a slough near Vermilion, Alberta.

Producer organisms are the land and water plants growing in and around the slough itself (1). The plants are then eaten by grasshoppers and snails (2), and the aquatic invertebrates (3). Fish, represented by seven or nine spined stickle backs (4) feed on the vegetative matter from both aquatic and terrestrial ecosystems. The fish are consumed by first-level carnivores, represented by the great blue heron (5). The sandpiper and mallard duck (6), song sparrows (7), muskrats (8), field mouse (9) and the western sandpiper (10) each feed on plants and animals. The shrew is a first-level carnivore (11). The top carnivores (second level) are the marsh hawk and the short-eared owl.

Describe what the effects might be if the song sparrows disappeared from the web.

Sample Questions/Activities:

1. Add micro-organisms to the food web.
2. List abiotic/biotic factors.
3. Identify environmental factors that would affect this food web.
4. List producers, consumers and decomposers.



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Assessment Criteria and Conditions:

- identifying and explaining six limiting factors and their affects on wildlife populations.

Suggested Reference(s):

- *Ecosystems*
- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete the task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

Limiting factors are the essential substances required for growth. Examples of limiting factors are food, water, shelter, space, temperature and appropriate habitat. When a factor is lacking, this factor often limits a population size. For example, food is usually the most important limiting factor for animal populations.

Limiting factors can be both biotic and abiotic and are continually changing. For example, a climatic change may result in a greater-than-normal production of the vegetation that supports a deermouse population, causing the mouse population to increase. A return to normal vegetation would lower the number of mice that could be supported. Less food available means fewer mice.

Wildlife populations fluctuate naturally around a level, which is called the **carrying capacity**. Carrying capacity means the number of living things any area or environment can support at any one time. In the example with mice, when the vegetation was increased the carrying capacity increased.

Some examples of limiting factors for wildlife populations include:

food	shelter
predation	space or habitat
disease	low productive rate
climate	species competition
human intervention	

Sample Questions/Activities

1. **Use the preceding examples to identify limiting factors that affect wildlife populations in each of the following situations:**
   a) Salmon, a major food item of some grizzly bear populations in the spring and summer, are decreasing. It is believed their decrease is caused by the contamination of salmon spawning areas by pulp mills.
   b) The peregrine falcon population is endangered because of the use of DDT, a pesticide used in the past. DDT causes the eggshells of the falcon to become extremely weak.
   c) Humans like to put up nest boxes for birds.
   d) Owing to the rapid increase in the deer population of an area, there is an increase of starvation and predation.
   e) A decrease in the number of wolves by a predator control program causes an increase in the local moose population.
2. **Define carrying capacity and limiting factor in your own words.**
3. **Choose a specific animal or plant. Describe three factors that may limit its population size.**
4. **Describe three ways a farmer or rancher could increase the carrying capacity of an area.**
5. **Describe three ways a farmer or rancher could decrease the carrying capacity of an area.**

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LAB OR FIELD INVESTIGATION: Limiting Factors for Wildlife Populations

WLD1010–4

TASK	OBSERVATION/RATING					
Management	4	2	3	1	0	N/A
Teamwork	4	3	2	1	0	N/A
Equipment and Materials	4	3	2	1	0	N/A
Investigative Techniques	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Management
- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ carries out instructions accurately
- ☐ uses time effectively

Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Equipment and Materials
- ☐ selects and uses appropriate equipment/materials
- ☐ follows safe procedures/techniques
- ☐ weighs and measures accurately
- ☐ returns clean equipment/materials to storage areas

Investigative Techniques
- ☐ gathers and applies information from at least one source regarding a particular population and its limiting/environmental factors
- ☐ makes predictions about the effects of environmental changes that can be tested
- ☐ considers and establishes ethical guidelines for the investigation of wildlife
- ☐ sets up and conducts experiments to test a prediction
- ☐ distinguishes between changing (environmental) variables and responding (population) variables
- ☐ obtains results that can be used to determine if some aspect of the prediction is accurate
- ☐ summarizes important experimental outcomes regarding the effects of environmental factors on a population
- ☐ _____

REFLECTIONS/COMMENTS

Sample Lab Investigations:
- fruitfly/mosquito populations
- planted seedlings
- tropisms (e.g., meal worms)

Sample Field Investigations:
- sampling aquatic invertebrate
- criteria for release/relocation sites (e.g., pheasants, foxes)
- create a birdhouse trail

RESOURCES:

Aquatic Invertebrate Monitoring Program, FEESA
Ecosystems, LRDC
Ecosystems, Calgary Board of Education
Project Wild, Alberta Environmental Protection

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Column A consists of 16 definitions that can be matched with the terms in column B. Choose the capital letter of the appropriate term in the parenthesis in column A. Each term can only be used once.

Column A

( ) 1. a community of living organisms and their local physical environment

( ) 2. an organism that feeds on the tissue of animals

( ) 3. a distinctive combination of plants and animals in a climax community

( ) 4. the study of ecosystems

( ) 5. a collection of populations of different species within a specific area

( ) 6. the process where a new species is born

( ) 7. a species whose progress is monitored as an indication of what is happening to an ecosystem or the environment as a whole

( ) 8. a group of organisms capable of producing fertile offspring or a group that has similarities in anatomy

( ) 9. the Earth's thin veil that contains and supports life

( ) 10. a species dies out for a number of reasons

( ) 11. genetic variation in a species that allows some individuals a greater chance of surviving

( ) 12. a transition zone between two structurally different communities

( ) 13. an organism that feeds on either vegetative or animal matter for sustenance

( ) 14. an organism that feeds on vegetative matter

( ) 15. interbreeding members of one species living in a specific area

( ) 16. a representative species dies out in a certain location but can be found in other areas.

Column B

A. extinction
B. natural selection
C. autotroph
D. detritivores
E. population
F. extirpation
G. species
H. biosphere
I. herbivores
J. community
K. omnivores
L. speciation
M. ecosystem
N. ecotone
O. biome
P. ecology
Q. carnivores
R. indicator species

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SAMPLE INTERVIEW PROJECT: Conservation and Preservation

WLD1010–6

The meanings of the terms conservation and preservation are often not clearly understood. The purpose of this assignment is to explore the meaning of these terms.

In this project you will:

- reflect upon what conservation and preservation mean to you now
- research the meaning of conservation and preservation as they relate to wildlife
- conduct interviews with three or more people regarding their views on wildlife conservation and preservation.
- present the results of interviews to the class, discussing similarities and differences between the terms, and misconceptions commonly held regarding the terms.

What do the terms conservation and preservation mean?

There are two functions of wildlife management—conservation and preservation. They are what biologists, park wardens, naturalists, agriculturists and farmers do. Wildlife management encompasses the application of knowledge and technical skills to protect, preserve, conserve, limit, enhance or extend the value of wildlife and its habitat.

The major objective of conservation is to USE "safe" wildlife populations wisely for the benefit of man. "Safe" refers to healthy plant and animal populations that are not threatened or endangered. "Wise use" means to use in such a manner as natural ecological processes are not disrupted.

The major objective of preservation is to PROTECT "unsafe" wildlife populations FROM HARM so as to make them "safe." "Unsafe" refers to unhealthy populations that are threatened or endangered. When this objective has been achieved, the population would move to the realm of conservation.

Sample Interview Questions: (It is important to note that there are no right or wrong answers.)

- ☐ What do the terms wildlife conservation and wildlife preservation mean?
- ☐ What is the difference between the terms?
- ☐ Can you provide an actual example of wildlife conservation? wildlife preservation?
- ☐ What do you believe to be the most critical problem facing wildlife today?
- ☐ Can you give one example of an endangered species in Canada?
- ☐ Do you know why this species is endangered?
- ☐ Can you give one example of an endangered or threatened habitat in the world?
- ☐ Do you know why this habitat is endangered or threatened?
- ☐ How do people try to "save" endangered species?
- ☐ Do you consider humans more important than other wildlife species? Why or why not?
- ☐ What is the difference between hunting and poaching?
- ☐ Can you name one place/habitat that has changed in your lifetime? How has it changed? How does this make you feel?
- ☐ Do you consider national parks important? Why or why not?
- ☐ Do you think we need more (or fewer) "protected spaces" in Alberta? Why or why not?
- ☐ Whose responsibility is wildlife?

References Used

Project Wild Activity Guide. 1990. Western Regional Environmental Education Council. Ottawa, Ontario.

Thomson, R. *The Wildlife Game*. 1992. The Nyala Wildlife Publications Trust. Westville, South Africa. p. 71.

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KNOWLEDGE/APPLICATION ASSESSMENT: Diversity in Wildlife — WLD1020–1

Assessment Criteria and Conditions:

- describing diversity among:
  - major groups of Canadian wildlife, including plants, insects, fish, amphibians, reptiles, birds and mammals
  - species within each major group of Canadian wildlife
  - the distribution and habitats of Canadian wildlife.

Suggested Reference(s):

- *Ecosystems*
- *The Nature of Canada: A Primer on Spaces and Species*
- *Alberta Wildlife Viewing Guide*
- *Nature Alberta: An Illustrated Guide to Common Plants and Animals*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 2 (Wildlife):

- Q20: What is "wildlife"?
- Q21: How many species of wildlife are there on Earth?
- Q22: How many species of wildlife do we have in Canada?
- Q23: What is "wildlife habitat"?
- Q24: How much space do wild species need to survive?
- Q25: Do species tolerate changes to their habitat?
- Q26: Can species survive destruction of their habitat?

Sample Questions/Activities

1. Identify the distinguishing characteristics of major groups of wildlife found in Canada; e.g.:
   - plants
   - micro-organisms
   - insects
   - fish
   - amphibians
   - reptile
   - birds
   - mammals.

2. Identify 50 or more Canadian wildlife species, including species representative of each of the major groups.

3. Select one of the major groups of wildlife found in Canada, and compare the distribution and habitats of five species within that group.

4. Provide a comprehensive list of wildlife species representative of each of three biomes of Canada; e.g.:
   - arctic
   - boreal forest
   - mountain
   - grasslands
   - Canadian Shield
   - temperate deciduous forest

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follow necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing
- ☐ accesses basic school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information in a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/opinion/theory
- ☐ responds to feedback when current approach is not working

Content
- ☐ provides a general description of the wildlife species with respect to structure, size/weight and coloration
- ☐ provides an illustration or picture of the wildlife species
- ☐ describes special characteristics/adaptations of the wildlife species; e.g.:
  - habitat/range
  - activity patterns
  - feeding habits/diet
  - hibernation/migration

Content (continued)
- ☐ provides a map that outlines species distribution and range
- ☐ describes species interactions; e.g.:
  - predation
  - interaction with humans
- ☐ provides information relevant to life cycle; e.g.:
  - reproductive cycle
  - mating habits
  - care of young
  - lifespan
- ☐ provides information relevant to social organization; e.g.:
  - solitary/gregarious
  - seasonal change in social structure
- ☐ describes the current status of the wildlife species and recent research conducted regarding the species
- ☐ _____
- ☐ _____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing
- ☐ demonstrates effective use of one or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical convention and technical terms
- ☐ cites three or more basic information sources

REFLECTIONS/COMMENTS:

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Rating	PROJECT CHECKLIST
	The student:
4 3 2 1 0	**Planning and Research** ☐ sets goals for the project and follow instructions accurately ☐ accesses relevant in-school/community information sources ☐ records accurate information regarding an ecoregion in Alberta (e.g., temperature, climate, topography, indicator species) ☐ interprets and explains structural, physiological and behavioural adaptation ☐ responds to feedback when current approach to project is not working ☐ adheres to established timelines and use time effectively ☐ _____
4 3 2 1 0 4	**Design and Technical Quality** ☐ designs a "critter" that illustrates examples of: – structural adaptation – physiological adaptation – behavioural adaptation ☐ selects appropriate equipment/materials and constructs a two- or three-dimensional model of the "critter" ☐ demonstrates elements of originality and creativity throughout the design and construction process ☐ maintains technical quality throughout the layout, construction and finishing phases of the project ☐ cooperates with, and shares work appropriately among group members ☐ _____
4 3 2 1 0	**Presentation and Critique** ☐ demonstrates effective use of at least one medium of communication (e.g., oral, written, visual) ☐ uses appropriate labelling techniques to identify structural, physiological and behavioural adaptations ☐ provides a rationale for the "critter" by relating each adaptation to environmental factors ☐ cites three or more relevant information sources ☐ makes summary statements regarding the goals of the project and how they were achieved ☐ reflects on the strengths and limitations of project outcomes, and suggests refinements to the process and/or product ☐ _____

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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Assessment Criteria and Conditions:

- defining biodiversity, and suggesting possible reasons for differences within and among wildlife species/spaces in Alberta as compared to those in other parts of the world.

Suggested Reference(s):

- *Ecosystems*
- *The Nature of Canada: A Primer on Spaces and Species*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 2 (Biodiversity):

- Q35: What is "biodiversity"?
- Q36: Why is biodiversity important?
- Q37: With so many species, why should we worry if some disappear?
- Q38: Is there a link between biodiversity and cultural diversity?

Sample Questions/Activities

1. Provide a definition for "biodiversity". Explain three main types of biodiversity; e.g.:
   - species diversity
   - genetic diversity
   - ecosystem diversity

2. Compare the diversity among living organisms in Alberta and other parts of the world; e.g.:
   - temperate to temperate
   - temperate to tropic
   - temperate to arctic

3. Suggest reasons for differences in diversity among living organisms in Alberta and other parts of the world; e.g.:
   - Earth history
   - evolution
   - extinction
   - number of niches
   - biotic and abiotic factors
   - human influences

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Safety Guidelines

1. For each of the following outdoor situations, clearly describe the primary hazard(s) you would expect to encounter, and the **precautions** you would take to avoid serious problems:
   a) a cross-country ski day-trip in the foothills in early winter
   b) a cross-country ski day-trip in the mountains in late spring
   c) a three-day spring canoe trip down a Class II river section
   d) a one-day mountain climbing trip in mid-summer
   e) a week-long hunting trip in the northern bush in early fall
   f) a two-day summer horseback trip in the southern grasslands.

2. You are the leader of a hiking party, on a five-day backpacking trip in the Willmore Wilderness. On the third day a member of your party has fallen and appears to be seriously injured. It's getting late in the day, but you are still about an hour away from your planned campsite for the night. Clearly explain:
   a) the **precautions** you would have taken and the plans you would have made before the trip to prepare for such an emergency
   b) the **immediate steps** you would take to tackle this problem
   c) the **contingencies** you would need to consider.

3. Explain the precautions you need to take **before, during and after** an outdoor trip in western Alberta to avoid problems arising from encounters with:
   a) black bears
   b) grizzly bears
   c) bees
   d) snakes
   e) ticks
   f) mosquitoes.

4. You are in charge of planning for a mid-winter, two-day overnight cross-country ski trip in Kananaskis Park for a group of five experienced skiers. Prepare a complete a:
   a) personal equipment list
   b) group equipment list.

5. You are on a one-day hiking trip in Jasper National Park with some friends. You go off on your own to fish some "good spots" around the corner. Later you discover that you are completely lost, and now it's starting to get dark.
   a) What should be your first priority?
   b) What actions should you take immediately?
   c) What should you do about food, water, shelter and animals?
   d) What steps should you take to expedite your rescue?

6. You are one of the "friends" in question #5. What steps should you and the rest of the group take when you discover that your friend is missing?

7. Describe the early symptoms of hypothermia.

8. What steps should be immediately taken if you suspect
   a) a member of your party is showing signs of hypothermia?
   b) you are beginning to suffer from hypothermia?

9. List the minimum equipment which should be included in a survival kit.

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Safety Guidelines (continued)

10. Describe the primary exposure hazard(s) in each of the following situations:
    a) hiking in the "badlands" at Dinosaur Provincial Park in mid-summer
    b) horseback riding in the northern bush country in early spring
    c) canoeing on the North Saskatchewan River in late fall
    d) mountain climbing in Banff National Park in mid-summer.

11. List four sources of "tinder" generally available in the wilderness to start a survival fire.

12 List and describe three Alberta wild plants that are poisonous, and three that are edible.

Survival Techniques

1. After experiencing an emergency and identifying the nature of the situation, name five steps that might be taken to assure safety of your guests.

2. Survival and first-aid kits must be available at all times. Describe/list five or more requirements for these kits.

3. An emergency shelter may often be set up using materials and natural structures. Identify four types of shelters.

4. When selecting a location for an emergency shelter, list four factors that should be considered.

5. Name eight methods that may be used for signalling for help in a survival situation.

6. List eight steps in the use of a two-way radio.

7. As dehydration affects mental and physical performance, water is necessary for survival. List five methods of obtaining water in a survival situation.

8. List three means of ensuring safe supply of food.

Ecotourism and Capacity

1. Define:
    a) ecotourism
    b) carrying capacity
    c) minimum impact/no-trace land use

2. Identify five stakeholder groups that may use the outdoor wilderness.

3. Explain when carrying capacity would be at its lowest in a specific wilderness area.

4. Name six factors that determine carrying capacity for a specific wilderness area.

5. Some of the best wildlife habitats have "an abundance of edge" (i.e., occur in areas where two ecosystems overlap). Explain what this means and give examples.

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GUIDELINES FOR SAFE TRAVEL

The student:

- ☐ prepares and follows a schedule for travel
- ☐ informs responsible person(s) of destination, route, expected date of return and number in party
- ☐ selects and prepares appropriate food and equipment for trip
- ☐ uses orientation and navigation skills; e.g.:
  - ☐ interprets natural signs
  - ☐ uses compass and map
- ☐ avoids dangerous situations with wildlife; e.g.:
  - ☐ monitors activities of wildlife in area
  - ☐ disposes of garbage properly
  - ☐ stores food safely
  - ☐ maintains safe distance from wildlife
- ☐ prepares for weather and seasonal conditions; e.g.:
  - ☐ identifies hazards particular to the area
  - ☐ listens to weather/news forecasts
  - ☐ watches for changes in current conditions
  - ☐ dresses according to season, weather and activity
  - ☐ carries survival equipment

GUIDELINES FOR SAFE TRAVEL (continued)

- ☐ follows safe procedures for the use of tools and equipment; e.g.:
  - ☐ ensures good condition prior to use
  - ☐ demonstrates safe use/appropriate care
  - ☐ follows safe procedures for storing and carrying
- ☐ follows safety guidelines for the use of fuels; e.g.:
  - ☐ adheres to legislation regarding fuel storage and use
  - ☐ filters fuel before use
  - ☐ adds fuel in ventilated area away from open flame
  - ☐ stores fuel using safe methods
- ☐ conducts self-assessment of personal performance and identifies strengths and areas that need improvement
- ☐
- ☐
- ☐

SETTING UP EMERGENCY SHELTER

The student:

- ☐ identifies type of shelter that will best protect from the elements
- ☐ selects an appropriate location for shelter, considering water, fire and signalling needs
- ☐ demonstrates two or more basic shelter-building techniques that involve the use of materials and/or natural structures available in the outdoors; e.g.:
  - ☐ fallen tree shelter
  - ☐ lean-to shelter
  - ☐ snow cave shelter
- ☐ demonstrates appropriate use of tools, equipment and safety devices
- ☐
- ☐
- ☐

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SIGNALLING FOR HELP

The student:

- ☐ explains applications of the international signal for help
- ☐ demonstrates three or more methods of sending rescue signals in the outdoors; e.g.:
  - ☐ flare signals
  - ☐ fire signals
  - ☐ mirror signals
  - ☐ sound signals
  - ☐ information signals
- ☐ demonstrates methods for sending ground to air signals; e.g.:
  - ☐ evergreen boughs
  - ☐ tramped snow
  - ☐ use of contrasting materials
- ☐

MINIMUM IMPACT LAND USE

The student:

- ☐ constructs a shelter demonstrating the least possible impact on the environment
- ☐ uses environmentally friendly materials, and limits the use/disposal of petroleum products

MINIMUM IMPACT LAND USE (continued)

- ☐ picks up other people's garbage, and carries out everything carried into the camp site
- ☐ demonstrates techniques for protecting and managing natural water supply; e.g.:
  - ☐ establishment of wash area
  - ☐ disposal techniques for waste water
- ☐ adheres to local fire restrictions
- ☐ uses existing fire box/pit whenever possible, and guards against flying embers
- ☐ builds fire away from roots and branches, and uses driftwood or deadfall for fire fuel whenever possible.
- ☐ follows marked paths and avoids ecologically sensitive areas
- ☐ considers carrying capacity of the area, and avoids nesting/spawning areas and young animals
- ☐ avoids removing plants and wildflowers, and disturbing sediment in streams
- ☐ critically examines outdoor procedures and suggests future refinements to land use practices
- ☐

STANDARD IS 1 IN EACH APPLICABLE TASK AREA

Rating Scale

The student:

4 Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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KNOWLEDGE/APPLICATION ASSESSMENT: Significance of Wildlife — WLD1050–1

Assessment Criteria and Conditions:

- identifying and explaining six or more scenarios where wildlife:
  - is important in social and cultural contexts
  - has economic value
  - is important in environmental contexts.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*
- *A Primer on Environmental Citizenship*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 4 (The Importance of Spaces and Species):

- Q56: Why should we value the natural environment?
- Q59: How does the health of wildlife relate to our own health?
- Q60: How do plants and animals help us stay healthy?
- Q61: Do spaces and species contribute to our psychological and emotional health?
- Q62: How do spaces and species contribute to our economic well-being?
- Q63: Why does agriculture need a healthy natural environment?
- Q64: How does forestry depend on the natural environment?
- Q65: In what ways does tourism rely on spaces and species?
- Q66: What is wildlife worth in dollars and cents?
- Q67: How have spaces and species contributed to human knowledge?
- Q69: How will the preservation of spaces and species benefit us in the future?

Sample Questions/Activities

1. Identify and describe six or more scenarios where wildlife is important in social and/or cultural contexts; e.g.:
   - recreation
   - spiritual/aesthetic uses
   - medicine
   - use of indigenous peoples
   - mythology/astrology
   - literature/art/drama.
2. Identify and describe six or more scenarios where wildlife has economic value; e.g.:
   - subsistence
   - tourism
   - commercial trade.
3. Identify and describe six or more scenarios where wildlife is important in environmental contexts; e.g.:
   - water, air and soil quality
   - diversity of life forms
   - maintenance of ecosystems.
4. Summarize the results of interviews with 10 or more different people regarding the social/cultural, economic and/or environment significance of wildlife (see WLD105–2).

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Directions:

1. Create a survey including at least 10 questions that will address the environmental significance of wildlife. (Some sample questions are provided, but think of at least two questions of your own.)

2. Summarize the survey results with a graph. The graph should include:
   a) the percentage of those surveyed who participate indirectly in wildlife-related activities (e.g., watching films or TV programs on wildlife, reading about wildlife, visiting zoos, game farms or natural science museums, purchasing wildlife posters, arts or crafts, member of wildlife organizations)
   b) the percentage of those surveyed who participate in non-consumptive wildlife-related activities (e.g., hiking, camping, watching wildlife, photographing wildlife, feeding wildlife, studying wildlife)
   c) the percentage of those surveyed who participate in consumptive wildlife-related activities (e.g., hunting of mammals and/or birds, fishing, trapping).

2. Present the results of the survey. Presentation to include:
   a) a visual display of graphed results (overhead, poster, etc.)
   b) a clear explanation of summarized results
   c) a summary of the most interesting thing you learned from doing this assignment.

Sample Survey Questions:

- Are wildlife/wilderness areas important to you? Why or why not?
- Can you describe at least two benefits of wildlife to society?
- Describe two activities that you participate in that allow you to interact with wildlife/wilderness areas.
- How many times in one year have you encountered wildlife during trips/outings?
- Do you watch wildlife programs on TV?
- Do you buy birdfeed on an annual basis? Do you like to watch birds? Why?
- Do you read magazines/books about wildlife?
- Do you visit zoos, game farms or natural science museums?
- Do you purchase wildlife posters, arts, or crafts?
- Do you hunt, fish or trap?
- Are you a member of a wildlife organization?
- How often do you participate in wildlife-related activities in one year?
- If you hunt, fish or camp, approximately how much money do you spend on licences, ammunition, gas, food, park permits, film, etc., in one year?
- If wildlife/wilderness areas were in serious trouble, would you be willing to pay a wildlife "tax" to help protect and conserve them? Why or why not?
- What do you do to "escape" the hustle and bustle of city life?

Reference: *The Importance of Wildlife to Canadians* (Highlights of the 1981 National Survey, p. 40). Ottawa, Ontario: Minister of Supply and Services Canada, 1985.

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TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	N/A
Information Gathering and Processing	4	3	2	1	N/A
Content	4	3	2	1	N/A
Collaboration and Teamwork	4	3	2	1	N/A
Information Sharing	4	3	2	1	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing
- ☐ accesses basic school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information in a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/opinion/theory
- ☐ responds to feedback when current approaches are not working

Content
- ☐ describes at least three significant personal impacts on wildlife and the environment
- ☐ describes specific ways in which the growth of human populations may affect wildlife and its habitat; e.g.:
  - deforestation
  - urban sprawl
  - energy use practices

Content (continued)
- ☐ describes specific ways in which technological and/or economic development may affect wildlife and its habitat; e.g.:
  - transportation
  - energy and mineral development
  - agricultural and forestry practices
- ☐ describes specific ways in which resource development may affect wildlife and its habitat; e.g.:
  - resource extraction
  - patterns/levels of consumption
  - land use practices
- ☐ _____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing
- ☐ demonstrates effective use of one or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical convention and technical terms
- ☐ cites three or more basic information sources

REFLECTIONS/COMMENTS

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KNOWLEDGE/APPLICATION ASSESSMENT: Principles of Wildlife Management — WLD1070–1

Assessment Criteria and Conditions:

- identifying and explaining basic principles of wildlife management and the role of regulated hunting in game management.

Suggested Reference(s):

- *Alberta Conservation and Hunter Education*
- *Project Wild*
- *A Wildlife Policy for Canada*
- *The Status of Wildlife in Alberta*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information	Sample Questions/Activities
See the *Alberta Conservation and Hunter Education Manual:* • Hunting Ethics – Definition of Ethics and Laws – Personal Code of Ethics – Ethics for Consideration – Importance of Ethics • Role of the Hunter • Wildlife Management: – Basic Principle of Ecology – Game Management and Conservation – Predators and Problem Wildlife	1. **Identify the goals of game management and agencies responsible for managing Alberta's game animals.** 2. **Identify and describe components/techniques of a game management plan**; e.g.: – biological research – inventory – habitat manipulation – management of wildlife populations 3. **Explain the role of regulated hunting in game management and conservation.** 4. **Describe responsibilities of the hunter in reporting conditions that may endanger wildlife;** e.g.: – pollution and its effect on wildlife – habitat loss and abuse – threats to rare and endangered species – neglect of wildlife laws 5. **Identify ethical considerations that provide a social standard for conduct when hunting;** e.g.: – hunter-landowner relations – regard for other land users – respect for self – respect for wildlife – respect for laws and enforcement officers

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions accurately
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ uses time effectively

Content
- ☐ provides a clear and concise statement of an issue regarding hunting ethics
- ☐ examines social, political, scientific, ethical, economic and/or environmental perspectives related to the issue
- ☐ provides detailed examples of the consequences of previous human activities relevant to the issue
- ☐ develops a logical argument and conclusion regarding the issue, and provides a rationale for the position taken

Content (continued)
- ☐ develops a plan of action for dealing with the issue at local and/or global levels
- ☐ provides a glossary of terms relevant to the issue
- ☐ _____
  _____
  _____

Presenting/Reporting
- ☐ demonstrates effective use of one or more communication media
  e.g., Written: spelling, punctuation, grammar, basic format
  Oral: voice projection, body language
  Audio-Visual: techniques, tools
- ☐ uses correct grammatical convention and technical terms through proofreading/editing
- ☐ provides an introduction that describes the purpose of the project
- ☐ communicates information in a logical sequence
- ☐ states a conclusion based on a summary of facts
- ☐ provides a reference list of three or more basic information sources

REFLECTIONS/COMMENTS

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BIG GAME UNGULATES

	Common Name	Characteristics/ Habits	Habitat/ Range
Horned Ungulates			
Bighorn Sheep	☐	☐	☐
Mountain Goat	☐	☐	☐
Pronghorn Antelope	☐	☐	☐
Antlered Ungulates			
Moose	☐	☐	☐
White-tailed Deer	☐	☐	☐
Mule Deer	☐	☐	☐
Caribou	☐	☐	☐
Elk	☐	☐	☐

BIG GAME CARNIVORES

	Common Name	Characteristics/ Habits	Habitat/ Range
Cougar	☐	☐	☐
Wolf	☐	☐	☐
Coyote	☐	☐	☐
Grizzly Bear	☐	☐	☐
Black Bear	☐	☐	☐

UPLAND GAME BIRDS

	Common Name	Characteristics/ Habits	Habitat/ Range
Willow Ptarmigan	☐	☐	☐
White-tailed Ptarmigan	☐	☐	☐
Sage Grouse	☐	☐	☐
Sharptail Grouse	☐	☐	☐
Ruffed Grouse	☐	☐	☐
Spruce Grouse	☐	☐	☐
Blue Grouse	☐	☐	☐
Ring-necked Pheasant	☐	☐	☐
Hungarian Partridge	☐	☐	☐

WATERFOWL

	Common Name	Characteristics/ Habits	Habitat/ Range
Puddle Ducks			
Mallard	☐	☐	☐
Pintail	☐	☐	☐
Green-winged Teal	☐	☐	☐
Blue-winged Teal	☐	☐	☐
Shoveller	☐	☐	☐
Gadwall	☐	☐	☐
Wigeon	☐	☐	☐
Diving Ducks			
Bufflehead	☐	☐	☐
Red Head	☐	☐	☐
Canvasback	☐	☐	☐
Lesser Scaup	☐	☐	☐
Ring-Necked Duck	☐	☐	☐
Common Goldeneye	☐	☐	☐
Geese			
Canada Goose	☐	☐	☐
White-Fronted Goose	☐	☐	☐
Snow Goose	☐	☐	☐
Ross's Goose	☐	☐	☐

STANDARD: The student is able to identify by common name, characteristics/habits and habitat/range:

- ☐ **eight big game ungulates (including horned and antlered animals)**
- ☐ **five big game carnivores**
- ☐ **eight upland game birds**
- ☐ **16 waterfowl (including puddle ducks, diving ducks and geese)**

REFERENCE GUIDES (available from Alberta Fish and Wildlife)

- *Alberta Conservation and Hunter Education Manual*
- Horn, Fur and Slide Kits.

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FIRST AID AND SURVIVAL

(PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

- ☐ identifies factors that affect ability to cope in emergency situations in the outdoors; e.g.:
  - ☐ pain and cold
  - ☐ thirst and hunger
  - ☐ fatigue, boredom and loneliness
  - ☐ fear
- ☐ describes the basic objectives of first aid
- ☐ demonstrates general procedures for examining someone who is hurt or suddenly becomes ill in the outdoors
- ☐ identifies and assembles essential items to include in first-aid and survival kits
- ☐ demonstrates basic emergency techniques for artificial respiration
- ☐ demonstrates basic emergency techniques to control bleeding from cuts
- ☐ demonstrates basic emergency techniques to provide care for victims of shock or concussion
- ☐ demonstrates basic emergency techniques for the care of sprains, fractures and dislocations
- ☐ demonstrates basic emergency techniques for the treatment of burns, blisters and frostbite
- ☐ demonstrates basic emergency techniques for the care of animal and insect bites
- ☐ describes personal responsibilities after administering emergency first aid, and other actions that may need to be considered:
  - ☐ _____
  - ☐ _____
  - ☐ _____
  - ☐ _____
- ☐ explains strategies for dealing with hypothermia in specific situations; e.g.:
  - ☐ symptoms
  - ☐ treatment
  - ☐ prevention
- ☐ demonstrates basic fire-building techniques in the outdoors; e.g.:
  - ☐ fire location
  - ☐ fuel
  - ☐ ignition
- ☐ explains different shelter-building techniques appropriate to specific outdoor environments; e.g.:
  - ☐ fallen tree shelter
  - ☐ lean-to shelter
  - ☐ snow cave shelter
- ☐ explains different methods of signalling and their application in specific situations; e.g.:
  - ☐ flare signals
  - ☐ fire signals
  - ☐ mirror signals
  - ☐ sound signals
  - ☐ information signals
- ☐ explains basic methods of securing water and food in outdoor survival situations; e.g.:
  - ☐ purifying water
  - ☐ avoiding poisonous plants
  - ☐ shooting, spearing, snaring, trapping or hooking animals
- ☐
- ☐
- ☐
- ☐

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OUTDOOR EQUIPMENT

(PERFORMANCE STANDARD IS 1 ON EACH TASK AREA)

The student:

- ☐ describes the function and characteristics of suitable outdoor clothing; e.g.:
  - ☐ underwear
  - ☐ shirt, pants and coat
  - ☐ boots and socks
  - ☐ gloves, mitts and headgear
- ☐ describes the function and characteristics of suitable outdoor bedding; e.g.:
  - ☐ sleeping bag
  - ☐ pillow
  - ☐ mattress
- ☐ explains different types and styles of tents appropriate to specific outdoor situations; e.g.:
  - ☐ wall tent
  - ☐ forester's tent
  - ☐ mountaineer's tent
  - ☐ lean-to tent
- ☐ identifies important features of manufactured tents; e.g.:
  - ☐ sod cloth
  - ☐ mosquito screen
  - ☐ tent colour
  - ☐ waterproofing
  - ☐ vestibule
- ☐ demonstrates proper storage procedures for tents
- ☐ demonstrates fabric repair techniques for tents
- ☐ explains applications of different types of knives and axes in outdoor situations
- ☐ explains techniques for safely selecting, handling and using knives and axes
- ☐ explains techniques for the safe storage of knives and axes
- ☐ explains techniques for safely sharpening knives and axes
- ☐ demonstrates the use of the compass in outdoor navigation
- ☐ demonstrates use of maps in outdoor navigation
- ☐ describes desirable characteristics and applications of different types of backpacking equipment in outdoor excursions; e.g.:
  - ☐ packboards
  - ☐ packsacks
- ☐ demonstrates techniques for putting on, carrying and taking off a loaded backpack
- ☐
- ☐
- ☐
- ☐

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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KNOWLEDGE/APPLICATION ASSESSMENT: Principles of Fisheries Management — WLD1080–1

Assessment Criteria and Conditions:

- identifying and explaining:
  - principles of fisheries management and the role of recreational fishing in managing fish resources
  - ethical and legal responsibilities of individuals involved in game fishing.

Suggested Reference(s):

- *Alberta Fishing Education Program*
- *Project Wild*
- *A Wildlife Policy for Canada*
- *The Status of Wildlife in Alberta*
- *Alberta Guide to Sportfishing*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See the *Alberta Fishing Education Program Manual:*

- Management:
  - Fishing Regulations
  - Size Limits/Bait Restrictions
  - Daily Catch and Possession Limits
  - Fish Stocking
  - Aquatic Habitat Development and Improvement
  - Commercial/Domestic Fishing
- Ethical Behaviour:
  - Definition of Ethics
  - Personal Code of Ethics
  - Fisherman – Landowner Relations
  - Relationship with other Fishermen
  - Self-Respect
  - Catch and Release Fishing
  - Respect of Laws
  - Importance of Ethics
- Legal Responsibilities:
  - Legal Process
  - The Purpose of Fishing Laws
  - Laws to Protect and Conserve Fish
  - Small Vessel Regulations
  - Criminal Code
  - *Litter Act*
  - Creating or Changing Laws
  - Interpretation of the Law
  - Access to Public and Private Lands

Sample Questions/Activities

1. **Identify the goals of fisheries management and the agencies responsible for managing Alberta's fish resources.**
2. **Identify and describe components/techniques of a fish management plan**; e.g.:
   - biological research
   - inventory
   - habitat improvement and manipulation
   - law enforcement/public information
3. **Explain the role of recreational fishing in the management and conservation of fish resources.**
4. **Identify ethical considerations that provide a social standard of conduct for sport fishing;** e.g.:
   - fisherman – landowner relations
   - regard for other people
   - respect for the fisheries resource
   - respect for laws and law enforcement
   - catch-and-release fishing
5. **Describe fishing regulations and related legislation that provide a legal standard of conduct for sport fishing;** e.g.:
   - laws to protect and conserve fish stocks
   - laws to govern activities of the fisherman
   - boating restrictions
   - litter control.

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and follows instructions accurately
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ uses time effectively

Content
- ☐ provides a clear and concise statement of an issue regarding fishing ethics
- ☐ examines social, political, scientific, ethical, economic and/or environmental perspectives related to the issue
- ☐ provides detailed examples of the consequences of previous human activities relevant to the issue
- ☐ develops a logical argument and conclusion regarding the issue, and provides a rationale for the position taken

Content (continued)
- ☐ develops a plan of action for dealing with the issue at local and/or global levels
- ☐ provides a glossary of terms relevant to the issue.
- ☐ _____
  _____
  _____

Presenting/Reporting
- ☐ demonstrates effective use of one or more communication media:
  e.g., Written: spelling, punctuation, grammar basic format
  Oral: voice projection, body language
  Audio-Visual: techniques, tools
- ☐ uses correct grammatical convention and technical terms through proofreading/editing
- ☐ provides an introduction that describes the purpose of the project
- ☐ communicates information in a logical sequence
- ☐ states a conclusion based on a summary of facts
- ☐ provides a reference list of three or more basic information sources

REFLECTIONS/COMMENTS:

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SALMONIDS

	Common Name	Physical Characteristics	Habitat/ Range	Spawning/ Feeding Habits
Rainbow Trout	☐	☐	☐	☐
Cutthroat Trout	☐	☐	☐	☐
Brown Trout	☐	☐	☐	☐
Bull Trout	☐	☐	☐	☐
Lake Trout	☐	☐	☐	☐
Brook Trout	☐	☐	☐	☐
Golden Trout	☐	☐	☐	☐
Arctic Grayling	☐	☐	☐	☐
Mountain Whitefish	☐	☐	☐	☐
Lake Whitefish	☐	☐	☐	☐
Cisco (Tullibee)	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

PERCIDS

	Common Name	Physical Characteristics	Habitat/ Range	Spawning/ Feeding Habits
Yellow Perch	☐	☐	☐	☐
Walleye	☐	☐	☐	☐
Sauger	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

OTHER GAME FISH

	Common Name	Physical Characteristics	Habitat/ Range	Spawning/ Feeding Habits
Northern Pike	☐	☐	☐	☐
Lake Sturgeon	☐	☐	☐	☐
Burbot (Ling)	☐	☐	☐	☐
Goldeye	☐	☐	☐	☐
Sucker	☐	☐	☐	☐
_____	☐	☐	☐	☐

STANDARD: **The student is able to identify by common name, physical characteristics, habitat/range and spawning/feeding habits:**

- ☐ **10 species of salmonids**
- ☐ **3 species of percids**
- ☐ **4 other species of game fish.**

REFERENCE GUIDES:

- ***Alberta Fishing Education Manual***
- ***Alberta Fishing Regulations***
- ***Slide Kits: Identification of Alberta Fish***

(available from Alberta Fish and Wildlife)

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TASK CHECKLIST: Fishing Equipment and Techniques **WLD1080–4**

FISHING EQUIPMENT

The student:

- ☐ describes the characteristics, use and care of common types of fishing equipment:
  - ☐ fishing rods and reels
  - ☐ lines and knots
  - ☐ hooks and artificial lures
  - ☐ snap swivels and wire leaders
  - ☐ sinkers, down riggers and floats
  - ☐ creels and nets
  - ☐ tackle boxes
  - ☐ survival and first-aid kits

FIELD TECHNIQUES

The student:

- ☐ describes the nature and purpose of different angling techniques:
  - ☐ spin fishing/spin casting
  - ☐ bait fishing/bait casting
  - ☐ fly fishing
  - ☐ trolling
  - ☐ ice fishing
  - ☐ bow fishing
  - ☐ catch-and-release fishing

FIELD CARE OF FISH

The student:

- ☐ explains techniques for the care of:
  - ☐ table fish
  - ☐ trophy fish

HANDLING/COOKING TABLE FISH

The student:

- ☐ demonstrates/explains techniques for handling table fish:
  - ☐ cleaning/dressing
  - ☐ scaling
  - ☐ skinning and filleting
  - ☐ freezing and canning
- ☐ demonstrates/explains techniques for cooking table fish
- ☐

SAFETY PRACTICES

The student:

- ☐ identifies general safety considerations relevant to fishing (e.g., wading, hook safety, storms, currents)
- ☐ explains specific safety practices relevant to fishing:
  - ☐ boat safety
  - ☐ ice safety
  - ☐ bear safety
- ☐ describes emergency first-aid and survival techniques:
  - ☐ items to include in first-aid and survival kits
  - ☐ basic first-aid and survival techniques
- ☐

STANDARD IS 2 FOR EACH TASK IDENTIFIED ON THE CHECKLIST

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTION/COMMENTS

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Assessment Criteria and Conditions:

- comparing and contrasting the social, environmental and economic significance of wildlife within two cultures (e.g., First Nation, European, Asian).

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *A Primer on Environmental Citizenship*
- *Project Wild*

STANDARD: Respond to a minimum standard of 2 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species:*

- Chapter 3 – The Cultural Heritage Perspective
- Chapter 4 – The Importance of Spaces and Species.

Q42: How does the environment affect culture?
Q43: How does culture affect the environment?
Q48: How can history help us protect our environment in the future?
Q56: Why should we value the natural environment?
Q58: In what ways do people depend on the natural environment for survival?
Q59: How does the health of wildlife relate to our own health?
Q60: How do plants and animals help us stay healthy?
Q61: Do spaces and species contribute to our psychological and emotional health?
Q62: How do spaces and species contribute to our economic well-being?
Q66: What is wildlife worth in dollars and cents?
Q67: How have spaces and species contributed to human knowledge?
Q69: How will the preservation of spaces and species benefit us in the future?

Sample Questions/Activities

1. **Compare and contrast the significance of wildlife in two cultures; e.g.:**
   - recreational
   - medicinal
   - spiritual and aesthetic
2. **Cite instances within two cultures where human and wildlife relationships are expressed through religious teachings, art, music, drama, literature, photography and/or other means of communication.**
3. **Compare and contrast the economic significance of wildlife within two cultures;** e.g.:
   - subsistence
   - commercial trade
   - tourism
4. **Compare and contrast the environmental significance of wildlife within two cultures;** e.g.:
   - indicator species
   - biodiversity
   - water, air and soil quality

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RATING	PLANNING CRITERIA
	The student:
4 3 2 1 0	**Reasons for Taking the Tour** ☐ provides a rationale for taking the tour; e.g.: – recreational – health – spiritual/aesthetic ☐ identifies economic considerations; e.g.: – revenue to the community ☐ identifies environmental considerations; e.g.: – impact of activities ☐ _____
4 3 2 1 0	**Tour Agenda/Itinerary** ☐ establishes a route plan and mode(s) of travel ☐ establishes a timeline for travel ☐ identifies and maps points of interest along the route ☐ plans activities for participants throughout the tour ☐ _____
4 3 2 1 0	**Tour Details** ☐ establishes accommodation, meal and clothing needs for tour participants ☐ prepares a comprehensive list of equipment and supplies required ☐ establishes a budget for the tour ☐ identifies safety hazards and emergency response procedures ☐ addresses legal matters relevant to the tour; e.g.: – environmental regulation – impending liabilities – insurance requirements ☐ _____
4 3 2 1 0	**Guidelines for Minimal Environmental Impact** ☐ explains basic principles of ecotourism ☐ identifies five or more guidelines for ensuring minimal environmental impact while en route ☐ reflects on the strengths/limitations of the plan for minimal environmental impact, and suggests refinements ☐ _____

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

Sample Ecotours

- Whale Watching at Tofino
- A Nahanni Canoe Trip
- Horseback Riding in Waterton National Park

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TRIP PLANNING AND PREPARATION

The student:

- ☐ establishes specific objectives for an outdoor wilderness trip; e.g.:
  - ☐ goals and expectations
  - ☐ length of trip
  - ☐ destination
  - ☐ general itinerary and daily agendas
- ☐ prepares a camping menu for self that addresses:
  - ☐ expected caloric output
  - ☐ all food groups included in the *Canada's Food Guide for Healthy Eating*
  - ☐ concerns related to food spoilage
  - ☐ provisions for emergency
- ☐ plans for weather and seasonal conditions; e.g.:
  - ☐ identifies hazards particular to the area
  - ☐ listens to weather and news reports/forecasts
- ☐ incorporates guidelines for environmental awareness into trip planning; e.g.:
  - ☐ principles of ecotourism
  - ☐ consideration for carrying capacity
  - ☐ strategies for minimum impact land use
- ☐ identifies and obtains appropriate supplies, equipment and personal gear for the trip; e.g.:
  - ☐ water and food
  - ☐ tent, stove, axe
  - ☐ first aid and survival supplies
  - ☐ clothing and foot wear
  - ☐ toiletries

TRIP PLANNING AND PREPARATION (continued)

The student:

- ☐ conduct pre-trip assessment of supplies, equipment and personal gear; e.g.:
  - ☐ compares to trip checklist
  - ☐ assesses quality, quantity and condition
  - ☐ assesses weather and seasonal conditions
  - ☐ obtains missing and/or specialty items
- ☐ prepares supplies, equipment and personal gear for transportation; e.g.:
  - ☐ addresses weight restrictions
  - ☐ makes efficient use of space
  - ☐ packs food to prevent spoilage and minimize odour
- ☐ plans course of action to cope with potential emergency situations in the wilderness; e.g.:
  - ☐ extreme weather conditions
  - ☐ fire or flood
  - ☐ injury and illness
  - ☐ avalanche
- ☐ reviews legislation and policy requirements relevant to area being visited; e.g.:
  - ☐ information regarding dangers inherent in the area
  - ☐ permits/licences that may be required
- ☐
- ☐

CONDUCTING THE TRIP

The student:

- ☐ follows guidelines for safe travel in an outdoor environment; e.g.:
  - ☐ follows travel schedule as planned
  - ☐ uses orientation and navigational skills
  - ☐ identifies potential hazards and takes necessary precautions
  - ☐ dresses according to mode of travel, weather and season
  - ☐ watches for changes in current weather conditions
- ☐ sets up campsite following guidelines for comfort, safety and least possible environmental impact; e.g.:
  - ☐ selects appropriate campsite
  - ☐ erects tent or lean-to
  - ☐ assembles other amenities
  - ☐ protects food from wildlife and spoilage
  - ☐ protects equipment from the elements
- ☐ follows minimal impact guidelines in establishing and using campsite; e.g.:
  - ☐ latrine location and toilet procedures
  - ☐ wash area and procedures
  - ☐ fire site and use
  - ☐ garbage and waste water disposal
- ☐ complies with local, provincial and federal legislation relevant to activities that are undertaken
- ☐ assumes camp duties on a rotational basis; e.g.:
  - ☐ meal preparation
  - ☐ camp maintenance and hygiene

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CONDUCTING THE TRIP (continued)

The student:

- ☐ monitors the activities of wildlife in the area and takes precautions to avoid dangerous situations
- ☐
- ☐

WILDERNESS INTERACTION

The student:

- ☐ identifies 25 insect, bird, mammal and/or other animal species
- ☐ identifies 25 tree, shrub and/or other plant species
- ☐ identifies, **while demonstrating appropriate safety/health precautions**, five different:
  - ☐ animal tracks and scat
  - ☐ hazardous plants
- ☐ identifies five or more uses of plants and/or animals for human survival and comfort in the wilderness environment
- ☐ spends three hours alone in a designated wilderness area, and shares experiences and coping strategies

WILDERNESS INTERACTION (continued)

The student:

- ☐
- ☐

BREAKING CAMP AND CONCLUDING THE TRIP

The student:

- ☐ follows appropriate procedures for breaking camp:
  - ☐ packs supplies, equipment and personal gear
  - ☐ takes down shelter
  - ☐ cleans site and removes waste
  - ☐ does circle tour of site
- ☐ conducts a post-trip assessment:
  - ☐ observations and personal impressions
  - ☐ activities well done
  - ☐ problems encountered
  - ☐ recommendations regarding future trips
- ☐
- ☐

STANDARD IS 2 IN EACH APPLICABLE TASK AREA

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Individual/Group Preparedness	4	3	2	1	0	N/A
Cooperation and Teamwork	4	3	2	1	0	N/A
Responsibility and Safety	4	3	2	1	0	N/A
Environmental Ethics	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Individual/Group Preparedness
- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ identifies/assembles outdoor gear appropriate to the task
- ☐ uses time effectively
- ☐ identifies tasks well done
- ☐ identifies problems encountered and suggests solutions
- ☐ makes recommendations regarding future trips
- ☐ _____
- ☐ _____

Cooperation and Teamwork
- ☐ works with a range of peer members
- ☐ shares work appropriately among group members
- ☐ considers the ideas/suggestions of others
- ☐ identifies tasks well done
- ☐ identifies problems encountered and suggests solutions
- ☐ makes recommendations regarding future trips
- ☐ _____
- ☐ _____

Responsibility and Safety
- ☐ selects and uses appropriate equipment/materials
- ☐ follows safe procedures/techniques
- ☐ anticipates and advises of potential hazards
- ☐ practises proper sanitation procedures
- ☐ identifies tasks well done
- ☐ identifies problems encountered and suggests solutions
- ☐ makes recommendations regarding future trips
- ☐ _____
- ☐ _____

Environmental Ethics
- ☐ uses environmentally friendly materials
- ☐ picks up garbage and carries out everything that is carried in
- ☐ avoids ecologically sensitive areas
- ☐ demonstrates techniques for protecting water supply
- ☐ identifies tasks well done
- ☐ identifies problems encountered and suggests solutions
- ☐ makes recommendations regarding future trips
- ☐ _____
- ☐ _____

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content
- ☐ provides an outline map of Canada that identifies seven major ecoregions
- ☐ provides an outline map of the world that identifies five World Heritage sites
- ☐ identifies and describes the characteristics of at least five indicator species for an ecoregion of Canada

Content (continued)
- ☐ identifies and describes at least five regulating factors for one of Canada's wildlife species; e.g.:
  - food, water and habitat
  - carrying capacity
  - predators and species competition
  - disease and pests
- ☐ compares and contrasts an ecoregion of Canada with a similar ecoregion in another part of the world, considering:
  - climate
  - geography
  - indicator species

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing
- ☐ demonstrates effective use of two or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites five or more relevant information sources

REFLECTIONS/COMMENTS:

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Sample Assessment Items

For centuries, most people in Canada believed that the resources would never run out. But now there is a growing awareness that this isn't true. Test your awareness with the following quiz on Canada's spaces and species.

1. How much of South America's rainforest remains?
   a) 85% b) 23% c) 52%

2. In comparison, how much of Canada's west coast rainforest is undisturbed?
   a) 25% b) 65% c) 3%

3. What percent of Canada's tall-grass prairie remains?
   a) 11% b) 25% c) 1%

4. What are the biggest threats to built heritages (e.g., buildings, statues) in Canada?
   a) air pollution b) neglect c) development
   d) vandalism e) weather f) water action
   g) all of the foregoing

5. By 1993, how many Canadian species, including plants and animals, were officially listed as "at risk"?
   a) 147 b) 236 c) 11

6. What is the single biggest reason for wildlife problems in Canada?
   a) over-hunting b) pollution c) loss of habitat
   d) acid rain

7. True or false? Special neighbourhoods and places you treasured as a child have been drastically altered by development.

8. Name four symbols of Canadian identity.

   _____ _____ _____ _____

Answers to Sample Assessment Items

1. *a) 85%*
   The real issue in South America is that these rainforests are incredibly rich and diverse. It is estimated that 90% of the world's species are found there. We are losing species we haven't even discovered yet.

2. *c) 3%*

3. *c) 1%*
   Tall-grass prairie in Canada is pretty well confined to southern Manitoba. Almost all of the original prairie grassland has been converted to other uses.

4. *g) all of the foregoing*

5. *b) 236*
   The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) compiles an annual list. The total list includes plants and animals that are endangered, threatened or rare, as well as those that are gone from Canada because they are extinct or extirpated. However there are many species, such as insects, about which we have no information.

6. *c) loss of habitat*

7. *No surveys have been done on this subject. The question is intended to get you reflecting for a moment on how your world has changed. Perhaps you can think of something you valued that has disappeared.*

8. *No right or wrong answers. What we value depends on our age, interest, and regional or cultural background. But Canadians often mention some of the same things: the maple leaf, our anthem (O Canada), the Rockies, the Parliament Buildings, the beaver, the Canadian flag, hockey, loons—a mix of cultural and natural heritage.*

STANDARD: Response indicating 80% mastery.

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Assessment Criteria and Conditions:

- identifying and explaining:
  - the roles of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Canadian Register of Heritage Properties (CRHHP)
  - the five categories of species at risk in Canada
  - methods used to identify spaces at risk in Canada.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a minimum standard of 2 on the rating scale

Rating Scale

The student:

4 met project/task objectives in a self-directed manner. Provided explanations and critical judgements based on a superior knowledge base. Demonstrated an understanding of relevant concepts and related issues.

3 met project/task objectives in a self-directed manner. Provided explanations and comparisons of relevant concepts using precise terminology. Required little or no prompting.

2 met project/task objectives with limited assistance in planning and in the selection and use of resources. Applied knowledge of concepts in different situations using correct terminology. Required occasional prompting.

1 completed task as directed, demonstrating basic skills/completeness by following a guided course of action. Used simple recall to demonstrate basic knowledge of concepts. Required prompting.

0 did not complete task, or was unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species:*

Chapter 5 – The Changing Nature of Canada's Spaces and Species

Q70: What is happening to the nature of Canada?
Q71: Why should we be concerned?
Q74: What are "endangered spaces"?
Q75: Why are natural spaces disappearing?
Q77: What are "endangered species"?
Q78: Why are species disappearing?
Q79: How serious is the situation in Canada?

Chapter 6 – The 100 Per Cent Solution

Q83: What is the "100 per cent solution"?
Q84: Why is 12 per cent the target for protected areas?
Q86: What are "protected natural areas"?
Q89: What are "representative" protected areas?
Q90: What are "critical wildlife areas"?
Q92: Is setting aside protected areas enough?

Chapter 7 – Programs for Protection and Stewardship

- Research for the Protection of Spaces and Species
- Identifying Spaces and Species
- Protecting Biodiversity
- Protecting Ecosystem Diversity
- Protecting Critical Wildlife Habitat

Sample Questions/Activities

1. **Explain how societal actions have caused wildlife spaces and species to become threatened or endangered;** e.g.:
   - human population growth
   - resource extraction
   - deforestation
   - pollution.
2. **What do we mean when we say a space or species is "at risk"?**
3. **What factors/criteria are used to determine if a space or species is at risk in Canada?**
4. **Explain the roles of agencies established to identify spaces and species at risk in Canada;** e.g.:
   - Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
   - Canadian Register of Heritage properties (CRHP).
5. **Explain and give examples of different types of spaces at risk in Canada;** e.g.:
   - threatened natural areas
   - areas essential to the functioning of the biosphere
   - areas essential to the survival of a particular species
   - cultural heritage sites.
6. **Define and give examples of the five categories of species at risk in Canada;** .e.g.:
   - vulnerable
   - threatened
   - endangered
   - extirpated
   - extinct.

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Assessment Criteria and Conditions:

- identifying and comparing roles, responsibilities and strategies relevant to two local, two national and two international programs currently implemented to protect spaces and species.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a minimum standard of 2 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species:*

Chapter 6 – The 100 Per Cent Solution

Q87: Who creates protected natural areas?
Q91: What role do nongovernmental organizations play in protecting areas?
Q101: What is being done to restore degraded ecosystems?
Q102: What is being done to recover specific wildlife species?

Chapter 7 – Programs for Protection and Stewardship

- Research for the Protection of Spaces and Species
- Identifying Spaces and Species
- Protecting Biodiversity
- Protecting Ecosystem Diversity
- Protecting Both Natural and Cultural Heritage
- Protecting Critical Wildlife Habitat
- Promoting Stewardship of Spaces and Species

Sample Questions/Activities

1. **Provide one or more examples of each of the following in managing ecosystems at local, national and/or international levels:**
   - parks
   - wildlife and wilderness areas
   - migratory bird sanctuaries
   - ecological reserves
   - world heritage sites
   - private landowners
   - grazing reserves.
2. **Outline the mandates, roles and responsibilities of two local programs (that receive support by government, industry, environmental and/or other community organizations) underway to protect spaces and species.**
3. **Outline the mandates, roles and responsibilities of two national programs (that receive support by government, industry, environmental and/or other community organizations) underway to protect spaces and species.**
4. **Outline the mandates, roles and responsibilities of two international programs (that receive support by government, industry, environmental and/or other community organizations) underway to protect spaces and species.**
5. **Compare one or more aspects of Canadian policy/philosophy regarding wildlife management with that of another nation regarding similar issues.**

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KNOWLEDGE/APPLICATION ASSESSMENT: Human Interaction with Wildlife — WLD2060–1

Assessment Criteria and Conditions:

- identifying and explaining three or more situations where changes in human populations have resulted in subsequent changes in wildlife (e.g., number, behaviour, habitat).

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *A Primer on Environmental Citizenship*
- *Project Wild*

STANDARD: Respond to a minimum standard of 2 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *A Primer on Environmental Citizenship*, Section 2: Humans and Their Environment:

A Changing Relationship

Q2.70: Are there ways to gauge the scale at which human activity affects the environment?

Q2.71: What has caused the increase in the environmental impact of our species?

Population

Q2.84: Is population growth really an environmental issue?

Q2.85: Are there other factors that determine environmental impact?

Technology

Q2.93: Does technological change pose a threat to human society and the environment?

Q2.94: What technological changes have had the greatest impact on modern society and its natural environment?

Economy

Q2.102: What are the economic reasons for environmental degradation?

Q2.103: Why are environmental resources sometimes undervalued?

Resource Use

Q2.111: What are some of the environmental concerns associated with the harvesting of renewable resources?

Q2.115: What are the environmental concerns associated with the use of nonrenewable and nonreplenishable resources?

Sample Questions/Activities

1. **How has wildlife affected the development, movement and size of human societies?**
   e.g.:
   - historical development
   - aboriginal settlement.
2. **Provide a personal interpretation of three or more situations where changes in human populations have resulted in subsequent changes in the number, behaviour or habitat of wildlife;** e.g.:
   - urbanization
   - dam construction
   - hunting/fishing
   - agriculture practices
   - transportation corridors
   - recreation and tourism
   - resource extraction.
3. **How have human populations affected wildlife and its habitat in your community?**
   e.g.:
   - changes in distribution, diversity and/or abundance
   - changes in habitat.
4. **Explain "habitat fragmentation." Identify three or more local wildlife species affected by this phenomenon.**

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content
- ☐ identifies and describes one technology or land use practice that influences wildlife and/or habitat
- ☐ explains applications of the technology or land use practice; e.g.:
  - agriculture/forestry
  - energy/mining
  - tourism/recreation

Content (continued)
- ☐ provides a drawing/illustration of the technology or land use practice
- ☐ identifies wildlife spaces/species affected by the technology or land use practice, and interactions of the technology/land use with wildlife/habitat
- ☐ provides a balance sheet of positive and negative affects of the technology/land use on wildlife and habitat; e.g.:
  - food production/habitat loss
  - employment gains/species extinction
- ☐ summarizes the benefits and costs of the technology or land use practice for wildlife and society
- ☐ _____
  _____
  _____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing
- ☐ demonstrates effective use of two or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites five or more relevant information sources

REFLECTIONS/COMMENTS:

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KNOWLEDGE/APPLICATION ASSESSMENT: Comparing Wildlife Management Plans

WLD2060–3

Assessment Criteria and Conditions:

- a comparison of two existing wildlife management plans with respect to:
  - goals
  - approaches taken
  - outcomes and accomplishments.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a minimum standard of 2 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 7: Programs for Protection and Stewardship.

There are more than 120 programs underway across Canada to protect spaces and species. This chapter describes some of the national and international programs developed to:

- support research for the protection of spaces and species
- identify spaces and species
- protect biodiversity
- protect ecosystem diversity
- protect both natural and cultural heritage
- protect historic places
- protect critical wildlife habitat
- promote stewardship of spaces and species.

See also *The Nature of Canada: A Primer on Spaces and Species*, Appendix A: Directory of Government and Non-Government Organizations.

Sample Questions/Activities

1. **Gather information regarding two existing wildlife management plans;** e.g.:
   - North American Waterfowl Management plan
   - Peregrine Falcon Recovery Plan
   - Swift Fox Rehabilitation Project.
2. **Explain and compare the two wildlife management plans with respect to goals and objectives.**
3. **Explain and compare the approaches taken/ techniques used in each management plan;** e.g.:
   - legislation and policy
   - incentives
   - education
   - demonstration
   - land use planning.
4. **Explain and compare the outcomes and accomplishments of each of the management plans;** e.g.:
   - social
   - economic
   - environmental.

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BOWS AND ARROWS

(PERFORMANCE STANDARD IS 3 IN EACH TASK AREA)

The student:

- ☐ conducts safety inspection of equipment:
  - ☐ string (e.g., signs of wear, proper installation on bow nocks)
  - ☐ limbs (e.g., check for cracks, twisted limbs, broken/splintered bow tips)
  - ☐ arrows (e.g., check for cracks and splinters, cracked/loose nocks, loose/broken points, fletching damage)
- ☐ identifies situations where equipment repair or replacement is required
  - ☐ _____
  - ☐ _____
- ☐ identifies optional accessories available for archery; e.g.:
  - ☐ finger tabs
  - ☐ armguard
  - ☐ glove
  - ☐ _____
- ☐ explains appropriate storage techniques for equipment used
  - ☐ _____
  - ☐ _____
- ☐ demonstrates safe bow handling techniques; e.g.:
  - ☐ stringing
  - ☐ marking the nocking point
  - ☐ observing range rules
- ☐ demonstrates archery fundamentals; e.g.:
  - ☐ identifying the master/dominant eye
  - ☐ stance (e.g., regular, oblique)
  - ☐ gripping
  - ☐ nocking (e.g., recognize cock feather, placement of nock on bow string)
  - ☐ draw and anchor (e.g., anchor point)
  - ☐ aim (e.g., use of bow sights, point of aim, recognition of safe target and surroundings)
  - ☐ release
  - ☐ follow through
- ☐ recognizes common errors and identifies how they can be corrected; e.g.:
  - ☐ high
  - ☐ low
  - ☐ right
  - ☐ left
  - ☐ high and right
  - ☐ low and left
- ☐

FIREARMS

(PERFORMANCE STANDARD IS 3 IN EACH TASK AREA)

The student:

- ☐ describes the evolution of the modern firearm; e.g.:
  - ☐ black powder
  - ☐ modern firearm
- ☐ identifies basic parts of firearms and their operation; e.g.:
  - ☐ stock
  - ☐ action
  - ☐ barrel
- ☐ explains characteristics of firearms; e.g.:
  - ☐ rifling
  - ☐ calibre
  - ☐ shotgun gauge
  - ☐ shotgun choke
- ☐ explains basic types of actions used to classify firearms; e.g.:
  - ☐ bolt
  - ☐ pump
  - ☐ lever
  - ☐ hinge
  - ☐ semi-automatic
- ☐ explains different types of safety devices used on firearms; e.g.:
  - ☐ slide
  - ☐ button
- ☐ explains types of sights on firearms; e.g.:
  - ☐ open
  - ☐ aperture
  - ☐ scope
  - ☐ bead
- ☐ describes the basic components of rifle and shotgun ammunition; e.g.:
  - ☐ centrefire
  - ☐ rimfire
  - ☐ shotshell
- ☐ illustrates selection of firearm and ammunition for appropriate game or intended use

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FIREARMS (continued) (PERFORMANCE STANDARD IS 3 IN EACH TASK AREA)

The student:

- ☐ explains the key concerns related to the acquisition of firearms; e.g.:
  - ☐ new (e.g., manufacturer's warranty)
  - ☐ used (e.g., inspection by certified gunsmith)
- ☐ explains appropriate techniques for the care of firearms in the field; e.g.:
  - ☐ checking for obstruction
  - ☐ operating safety
  - ☐ general cleanliness
- ☐ explains appropriate techniques for maintaining firearms; e.g.:
  - ☐ periodic cleaning/maintenance
  - ☐ thorough cleaning prior to storage
- ☐ explains appropriate techniques for storing firearms; e.g.:
  - ☐ locking separate from ammunition
  - ☐ vault
  - ☐ trigger lock or cable lock
  - ☐ bolt removal
- ☐ explains basic principles of safe rifle and shotgun handling; e.g.:
  - ☐ controlling muzzle
  - ☐ treating firearm as if loaded
  - ☐ keeping action open
  - ☐ selecting correct ammunition
  - ☐ focusing on target and beyond
  - ☐ refraining from the use of alcohol/drugs
  - ☐ being aware of fatigue
  - ☐ making firearms safe while travelling
- ☐ explains safe procedures for the use of firearms in the field; e.g.:
  - ☐ muzzle control
  - ☐ use of safety device
  - ☐ finger outside trigger guard
  - ☐ crossing fences or barriers
- ☐ explains techniques for the safe loading and sighting of a firearm; e.g.:
  - ☐ checking data stamp against ammunition
  - ☐ stance and shooting position
  - ☐ mount and positioning
  - ☐ aim
  - ☐ trigger control
  - ☐ breath control
  - ☐ follow through
- ☐ explains appropriate range procedure for recreational shooting activities; e.g.:
  - ☐ novelty shooting
  - ☐ regulation shooting (e.g., trap, skeet, silhouette, target)
- ☐ explains range procedures relevant to a specific club; e.g.:
  - ☐ procedure while on the firing line
  - ☐ instructions to load
  - ☐ instructions for cease fire
- ☐
- ☐

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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VISUAL ACUITY AND PHYSICAL STRENGTH
(PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

- ☐ describes the importance of visual acuity
- ☐ conducts an assessment of personal visual ability; e.g.:
  - ☐ distance and nearpoint vision
  - ☐ depth perception
  - ☐ peripheral vision
  - ☐ colour vision
  - ☐ binocular coordination
  - ☐ _____
- ☐ identifies factors that affect visual perception; e.g.:
  - ☐ lighting (dusk/dawn, light/shadow)
  - ☐ atmospheric conditions (rain, snow)
  - ☐ cover type (heavy vegetation)
  - ☐ snow cover/sun reflection
  - ☐ _____
- ☐ identifies strategies for improving vision in outdoor environments; e.g.:
  - ☐ corrective lenses
  - ☐ sunglasses (tinted, polarized)
  - ☐ optical instruments (binoculars, spotting scope)
  - ☐ _____

- ☐ explains the role of physical conditioning in safe outdoor experiences; e.g.:
  - ☐ endurance
  - ☐ stamina
  - ☐ _____
- ☐ explains the importance of recognizing personal limitations relevant to endurance and stamina in outdoor experiences
- ☐
- ☐

TARGETING
(PERFORMANCE STANDARD IS 3 IN EACH TASK AREA)

The student:

- ☐ explains the importance of safe and accurate targeting of big game and bird game
- ☐ identifies vital target areas and targeting techniques for big game
- ☐ identifies vital target areas and targeting techniques for bird game

- ☐ identifies and explains all safety criteria relevant to taking aim; e.g.:
  - ☐ correct identification of target
  - ☐ proper backstop
  - ☐ safe impact zone
  - ☐ _____
  - ☐ _____
- ☐
- ☐

HANDLING AND DRESSING GAME ANIMALS
(PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

- ☐ explains techniques for dressing big game animals in the field
- ☐ explains techniques for skinning big game animals; e.g.:
  - ☐ antlered and horned animals
  - ☐ non-trophy animals
  - ☐ trophy animals
  - ☐ bears, wolves, coyotes, cougars

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HANDLING AND DRESSING GAME ANIMALS (continued)

(PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

- ☐ explains techniques for hanging and cooling the carcass of a big game animal
- ☐ explains techniques for preserving the hides and capes of big game
- ☐ explains techniques for transporting game from field to camp
- ☐ explains techniques for butchering big game
- ☐ explains techniques for skinning, plucking and cleaning game birds
- ☐ explains techniques for cooling and transporting game birds
- ☐ explains techniques for the care of trophy game birds
- ☐ explains techniques for dressing and handling rabbits in the field
- ☐
- ☐

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content
- ☐ identifies and interprets federal, provincial and/or municipal laws and regulations intended to protect life and property; e.g.:
  - safety of self and others
  - trespassing
  - access to public lands

Content (continued)
- ☐ identifies and interprets federal, provincial and/or municipal laws and regulations intended to protect and conserve wildlife; e.g.:
  - hunting season/species
  - gender identification/maturation/bag limits
  - management units
- ☐ identifies and interprets federal, provincial and/or municipal laws and regulations intended to govern behaviour of a sports person; e.g.:
  - use of bows/arrows/firearms
  - "use respect" protocol
- ☐ explains responsibilities of the sports person and procedures to follow in reporting violations of the law and biological data to appropriate officials; e.g.:
  - "TIPS"
  - "Report a Poacher"

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing
- ☐ demonstrates effective use of two or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites five or more relevant information sources

RESOURCES:
- *Migratory Game Bird Act*
- *National Parks Act and Regulations*
- *Fisheries Act of Alberta*
- *Alberta Wildlife Act*
- *Alberta Hunting Regulations*

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CRITERIA FOR SUMMARIZING WILDLIFE ISSUES

WLD2090–1

WILDLIFE ISSUE	Statement of Issue	Related Positions/ Stakeholders	Contributing Factors	Consequences for Humans/Wildlife	Actions Being Taken
Issue #1:	4	4	4	4	4
	3	3	3	3	3
	2	2	2	2	2
	1	1	1	1	1
	0	0	0	0	0
Issue #2:	4	4	4	4	4
	3	3	3	3	3
	2	2	2	2	2
	1	1	1	1	1
	0	0	0	0	0
Issue #3:	4	4	4	4	4
	3	3	3	3	3
	2	2	2	2	2
	1	1	1	1	1
	0	0	0	0	0
Issue #4:	4	4	4	4	4
	3	3	3	3	3
	2	2	2	2	2
	1	1	1	1	1
	0	0	0	0	0
Issue #5:	4	4	4	4	4
	3	3	3	3	3
	2	2	2	2	2
	1	1	1	1	1
	0	0	0	0	0

STANDARD: Summarize 5 current wildlife issues to a standard of 2 on the rating scale; each summary to address criteria identified above.

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

SAMPLE ISSUE: Protection of Wolf Populations

Statement of the Issue

Some ranchers, stock growers and hunters do not want wolves protected because they prey on livestock and ungulates.

Related Positions/Stakeholders

Conservationists would advocate for total protection of wolves in order to re-establish natural populations. Wildlife managers need to ensure the well-being and survival of wolf populations.

Contributing Factors

Wolves prey on livestock and ungulates. Some humans perceive wolves as a threat. As a large predator, wolves are an important part of the ecosystem.

Consequences for Humans/Wildlife

There is a loss in agriculture revenue when livestock are preyed upon by wolves. Where wolf numbers are high, some ungulate populations are declining. Some wolf populations have been eliminated through hunting, trapping and poisoning.

Actions Being Taken

Wolves have been reintroduced into some regions. Liberal hunting and trapping policies exist in areas where wolf populations are high. Compensation is sometimes given to landowners for livestock lost to wolves.

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CATEGORY	Alberta	Canada	Global
Habitat Loss/Manipulation	• Urbanization • Grizzly Bear • Agriculture •	• Urbanization • Prairie Grassland • Swift Fox •	• Urbanization • Rainforest • Wetland Drainage •
Introduction of Non-native Species	• Starlings/Sparrows • Suffield Horses • •	• Water Milfoil • Thistle • Purple Loosestrife •	• Norway Rats • • •
Hunting and Commercial Trade	• Antlers/Horns • Bear Gallbladders • Filling Wetlands	• Antlers/Horns • Bear Gallbladders • Seals/Salmon/Cod •	• Antlers/Horns • Bear Gallbladders • Fur Clothing •
Industrial Development	• Dams and Reservoirs • Clearcut Logging •	• Great Lakes • Arctic Pipelines • •	• Oil Spills • Logging Rainforests • •
Pollution	• Power Plants • Use of Pesticides • •	• Chemicals in Water Supply • • •	• Use of DDT • Rivers/Water Systems • •
Conservation/Preservation	• Bow Valley Corridor • Alberta Provincial Parks • •	• National Parks • Arctic Ecosystem • •	• World Heritage Areas • • •

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content
- ☐ identifies and explains one local or national wildlife issue
- ☐ explains the impact of the issue on wildlife, humans and/or the environment

Content (continued)
- ☐ identifies stakeholders involved, and the viewpoints of each stakeholder group
- ☐ identifies different philosophies, ethics and alternatives regarding the issue
- ☐ states a personal position regarding the issue and a rationale for the position taken
- ☐ compares and contrasts the issue with a related wildlife issue in another part of the world
- ☐ _____

_____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing
- ☐ demonstrates effective use of two or more communication media:
  e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites five or more relevant information sources

REFLECTIONS/COMMENTS:

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KNOWLEDGE/APPLICATION ASSESSMENT: Wildlife and the Arts — WLD3020–1

Assessment Criteria and Conditions:

- identifying and explaining one or more human-wildlife relationships expressed through each of the following: art, literature, dance, music and drama.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a minimum standard of 3 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 3: The Cultural Heritage Perspective:

People, Culture and the Environment

Q42: How does the environment affect culture?
Q43: How does culture affect the environment?
Q44: What does studying people have to do with the environment?
Q45: How do we learn about people?

History

Q46: How do we learn about the past?
Q47: But isn't history just about wars and inventions?
Q48: How can history help us protect our environment in the future?

Heritage

Q51: What's the difference between "history" and "heritage"?
Q52: Then heritage is more than buildings?
Q54: If we want to preserve heritage, can't we just take photos and videos?
Q55: Can the concept of integrity apply to cultural heritage?

Sample Questions/Activities

1. **Examine differing cultural views regarding wildlife;** e.g.:
   - aesthetic/spiritual
   - consumptive
   - recreational
   - environmental.
2. **Visit cultural/natural museums and take note of past/present influences of wildlife on cultures and societies;** e.g.:
   - food, clothing and shelter
   - spiritual and aesthetic
   - medicinal
   - recreational
   - companionship.
3. **Identify one or more human-wildlife relationships expressed through each of the following:**
   - art
   - literature
   - dance
   - music
   - drama.
4. **Based on your review of human-wildlife relationships expressed through the arts, cite instances where social/cultural attitudes and values regarding wildlife have changed.**

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Guidelines for Writing the Composition

Write a story or poem inspired by a painting, photograph or sculpture of a wildlife space or species. Consider the following statements/questions to help stimulate your ideas for writing.

1. Examine your subject.
   - What is your angle or focus on the subject? This may guide you in the development of ideas.
   - Define your subject. What exactly is it? What does it include?
   - Describe your subject. What is it like? Does it have parts? How is it similar to other subjects? How is it different from other subjects?
   - Why does your subject exist? What is its purpose? What does it do?
   - Why is your subject important? Is it necessary? Why is it worthy for you to write about?
2. Consider your subject in relation to other things.
   - How did your subject develop? Where did it come from? Why does it do what it does?
   - What concrete/abstract ideas does your subject connect to? What does it affect? What affects it? How does it affect you?
   - Is your subject a part of something bigger? How? Is it composed of smaller parts? How?
   - Does your subject follow something else? What is it? What comes after your subject?
   - Does your subject have an opposite? How does this opposite affect your subject?
3. Reflect on the value of your subject.
   - Does your subject have social value? How?
   - Does your subject have economic value? How?
   - Does your subject embody any constant truths or principles? What are they?
   - Why might others want to know about your subject? What meaning might it have for others?

Criteria for Assessing the Composition

Focus: The topic is clearly defined; a controlling theme/idea is generally sustained.

Content: Creative, insightful and original ideas are used; the ideas are developed with supporting detail and relate to the topic.

Imagery: Precise, colourful words that communicate vivid pictures are used.

Style: The composition is clearly written and readily understood; a personal focus and distinct sense of individuality is established.

Visual: The composition is accompanied with a creative picture, photograph, drawing or painting of the subject.

STANDARD IS 3 IS EACH TASK AREA

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

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TASK	OBSERVATIONS/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and uses correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content
- ☐ explains an existing program that enhances a wildlife space and/or species by identifying:
  - goals and objectives of the program
  - the space(s)/species involved
  - impacts or consequences of the program
  - key interest groups involved
  - trade-offs or compromises made

Content (continued)
- ☐ identifies scientific, technological and/or societal (e.g., political, social, economic) decisions and/or processes involved in the program
- ☐ summarizes actions and strategies used in the program
- ☐ identifies and compares the contributions of different interest groups
- ☐ identifies and explains relevant laws, acts and agreements related to the program
- ☐ _____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ suggests solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing
- ☐ demonstrates effective use of a variety of communication media:
  e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ provides evidence of adequate information gathering by citing relevant and current information sources

REFLECTIONS/COMMENTS:

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ASSESSMENT CRITERIA: Components of Scientific Research — WLD3040–1

Introduction

This project involves the review of scientific research regarding a wildlife species and/or space as outlined in a current wildlife journal (e.g., *Canadian Journal of Zoology, Canadian Field Naturalist, Journal of Wildlife Management, Arctic*). You will be expected to identify major components of the research process as they apply to the space or species. Research components that must be identified include:

- definition of the problem
- review of relevant information sources
- a plan for collecting data
- data collection and presentation
- data analysis
- conclusions
- recommendations.

Guidelines for Conducting the Review

1. After reviewing several articles regarding wildlife research, select one article concerning a research project of interest to you. Explain in your own words the **problem** or **question** that the research proposes to answer.
2. When conducting research, a biologist gathers relevant information available from other sources regarding the topic. As you read the article, notice the many references made to the work or ideas of others. List five or more different references made to the work or ideas of others in the article.
3. The **plan for collecting data** is usually found in the "methods" section of a research article. Find this section of the article and attempt to answer the following questions:
   - What specific data is being collected?
   - How is the data collected?
   - Where is the data collected?
   - When is the data collected?
   - How often is the data collected?
4. Researchers often graph or map data so as to more easily identify relationships between variables that may exist. Describe methods of **data presentation** and **data analysis** used in the research project. Explain how the methods employed are used to answer the "problem" or "question" under study.
5. Summarize **conclusions** that were presented in the article. Do the conclusions address the "problem" or "question" that was proposed?
6. Summarize the **recommendations** made regarding the research topic as a result of the data collected and conclusions reached.
7. Describe how the outcomes of research were summarized and communicated to the intended audience. Identify strengths of limitations in the **methods of communication** used.

Criteria for Assessing the Review

Scoring Criteria	**Weighting**
The student:	
☐ defines the research problem	_____
☐ lists relevant sources of information	_____
☐ identifies/explains data collection techniques:	_____
– what?	
– how?	
– where?	
– when?	
– how often?	
☐ describes methods of data presentation/analysis	_____
☐ summarizes conclusions	_____
☐ summarizes recommendations made	_____

STANDARD: Identify all components and applications of scientific research to a standard of 3 on the rating scale.

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

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Sample Research Topics

- Eagle Migration
- Food Habits of Caribou
- Polar Bear Dens
- Human Disruption of Animal Migration
- Comparing Bird Beaks
- Zebra Mussels
- Purple Loosestrife
- Introduction of Biological Controls
- Wolf Management in National Parks
- Reintroduction of the Swift Fox
- Decomposition Rate of Carcasses by Maggots
- Development of Ski Hills/Trails
- Impacts of Clearcutting on Trout Streams
- Beaver Control and Wetlands
- Impacts of Energy Development on Wildlife
- Impacts of Icebreakers on Marine Mammals
- Rattlesnake Predation on Gophers
- Environmental Effects of Dam Development

Guidelines for Defining the Research Problem

The student:

1. poses a relevant question for research
2. defends the relevance of the topic and question
3. identifies three or more relevant information sources
4. limits the topic and question to a specific problem to be studied
5. clarifies the problem by identifying key components and relevant terms
6. defines the problem by way of a concise statement/objective for research.

Criteria for Assessing the Research Problem

Scoring Criteria	Weighting
☐ Statement of Topic and Question	_____
☐ Relevance of Topic and Question	_____
☐ Information Sources	_____
☐ Limitation to a Specific Problem	_____
☐ Clarification of the Problem	_____
☐ Statement/Objective for Research	_____

STANDARD: Define five research problems to a standard of 3 on the rating scale.

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

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TASK	OBSERVATION/RATING
Preparation and Planning	4 3 2 1 0 N/A
Information Gathering and Processing	4 3 2 1 0 N/A
Collaboration and Teamwork	4 3 2 1 0 N/A
Conclusions and Information Sharing	4 3 2 1 0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ defines and limits a problem or question regarding a wildlife space or species
- ☐ designs a plan for conducting research and collecting data related to the problem

Information Gathering and Processing
- ☐ accesses a range of relevant information sources (e.g., library, computer, interview) and recognizes when additional information is required
- ☐ collects baseline and specific data using appropriate information gathering techniques; e.g.:
  - samplings and surveys
  - observations
  - measurements and estimations
- ☐ interprets, organizes and combines data in creative and thoughtful ways
- ☐ analyzes and interprets data, relates data to the problem, and formulates further questions

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication and leadership skills

Conclusions and Information Sharing
- ☐ draws conclusions related to the problem; e.g.:
  - recommendations
  - management actions
  - further research and investigation
- ☐ shares the results of research using two or more communication media:
  e.g., written, oral, audio-visual
- ☐ summarizes information relevant to each stage of scientific research; e.g.:
  - definition of the problem
  - literature review
  - data collection and presentation
  - data analysis
  - conclusions and recommendations
- ☐ maintains acceptable grammatical and technical standard in information shared
- ☐ gives evidence of adequate information gathering by citing current and relevant information sources used
- ☐ _____

REFLECTIONS/COMMENTS

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Wildlife Management Terms

Match each term in Part B with the statement in Part A that describes it.

Part A

_____ the "home" of a species of wildlife within an ecosystem
_____ the edges or borders of different habitats overlap each other
_____ the ability of a given habitat to support or carry a population of particular species
_____ changes in habitat that result in an increase or decrease in carrying capacity
_____ motion or change within a population over time
_____ as the survival of breeding populations increase, the survival of the offspring decreases
_____ the end result of a successive biome community that is capable of self-perpetuation
_____ a field of "applied ecology"
_____ if one or more factors affecting the death rate decline, others will increase so that overall death rate will not significantly change
_____ two or more species living in the same habitat
_____ a reliable count or estimate of the population of a wildlife species
_____ changing soil, water and plant conditions to accommodate a targeted species
_____ techniques used to alter the abundance and distribution of game populations
_____ the gradual change in population characteristics over a geographical area
_____ functional role of a species in its habitat

Part B

game management
limiting factors
wildlife inventory
climax
habitat
carrying capacity
Principle of Inversity
niche
wildlife manipulation
habitat manipulation
cline
coexistence
edge effect
Principle of Compensation
dynamics
stability
zone

Answers

habitat
edge effect
carrying capacity
limiting factors
population dynamics
Principle of Inversity
climax
game management
Principle of Compensation
coexistence
wildlife inventory
manipulation
wildlife manipulation
cline
niche

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Short Answer Quiz

1. State and explain the *Principle of Inversity*.
2. Explain philosophical differences between conservation, preservation and wildlife management.
3. Explain the difference between extirpated and extinct species. Give examples of each.
4. Explain what the carrying capacity of an ecosystem means.
5. Management schemes for big game animals are varied. Name and describe three ways to manipulate the population of a big game animal.
6. Describe two management schemes that could be employed to increase browse habitat for big game animals such as moose or elk.
7. Describe two instances of habitat manipulation and the consequences of each for wildlife.
8. Explain techniques for conducting a wildlife inventory.
9. Assume that a sage grouse population is living in a small portion of southern Alberta. Identify and explain three limiting factors for populations of this game bird.
10. Identify and describe major components in a wildlife management plan.

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KNOWLEDGE/APPLICATION ASSESSMENT: Components of Wildlife Management — WLD3050–2

Assessment Criteria and Conditions:

- given information regarding a current plan for managing a wildlife space or species, identifying major components of the plan and applying each to the management of the space or species.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*

STANDARD: Respond to a minimum standard of 3 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 7: Programs for Protection and Stewardship:

Promoting Stewardship of Spaces and Species
- Wildlife Policy for Canada
- North American Waterfowl Management Plan
- Wildlife Habitat Canada
- Ducks Unlimited Canada
- Recovery of Nationally Endangered Wildlife
- Endangered Species Recovery Fund
- Heritage Canada
- Special Places 2000

Obtain copies of current wildlife management plans. For example:

- *North American Waterfowl Management plan*
- *Peregrine Falcon Recovery Plan*
- *Vermilion Lakes Area Plan*
- *Kootenay National Park Management Plan.*

See *Prairie Conservation: A Landowner's Guide* for additional information regarding wildlife management plans.

Sample Questions/Activities

1. **Cite reasons for the establishment of a plan for managing a space or species;**
   e.g.:
   - types of information gathered
   - questions that are answered.
2. **Identify political, social, economic, technological and/or scientific factors/ perspectives that have influenced development of the management plan.**
3. **Describe major components of the plan as they apply to managing the space or species;**
   e.g.:
   - goals and objectives
   - data collection and research techniques
   - government and nongovernment input
   - alternatives, consequences and potential conflicts
   - the course of action taken
   - strategies for monitoring and assessing outcomes
   - recommendations and/or suggested modifications.
4. **Develop a glossary of terms relevant to the wildlife management plan.**

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TASK	OBSERVATIONS/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content
- ☐ identifies reasons for managing a wildlife space or species; e.g.:
  - types of information gathered
  - questions that are answered
- ☐ identifies major political, social and/or economic decisions that have affected the management of the space or species from past to present

Content (continued)
- ☐ provides a historical account of the space or species; e.g.:
  - past and present status
  - government involvement and interest
- ☐ defines specific goals and objectives (past and present) of the management process
- ☐ provides a historical account of management strategies and tools that have been used
- ☐ identifies management outcomes, and relates these to original goals and objectives
- ☐ assesses management strategies and tools used from past to present in terms of:
  - usefulness in achieving desired goals and outcomes
  - impact on other spaces and/or species

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing
- ☐ demonstrates effective use of a variety of communication media:
  e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing seven or more relevant information sources

REFLECTIONS/COMMENTS:

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TASK	OBSERVATION/RATING
Preparation and Planning	4 3 2 1 0 N/A
Analyzing Perspectives	4 3 2 1 0 N/A
Collaboration and Teamwork	4 3 2 1 0 N/A
Evaluating Choices and Making Decisions	4 3 2 1 0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ accurately describes a current issue in wildlife management on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding the issue
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Analyzing Perspectives
- ☐ categorizes different points of view regarding the issue in wildlife management;
  e.g., cultural, ethical, economic, environmental, health-related, scientific, political
- ☐ states a position on the issue and insightful reasons for adopting that position
- ☐ states three or more opposing positions on the issue and thoughtful reasons for adopting each position
- ☐ analyzes interrelationships among different perspectives/points of view
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork
- ☐ shares work appropriately among group members
- ☐ respects and considers the views of others
- ☐ negotiates with sensitivity solutions to wildlife management problems

Evaluating Choices/Making Decisions
- ☐ describes in detail important and appropriate alternatives regarding the wildlife management issue
- ☐ establishes knowledge- and value-based criteria for assessing each alternative:
  e.g., social, economic, environmental
- ☐ selects an appropriate and useful alternative by showing differences among choices
- ☐ assesses strengths/weaknesses of decisions by considering consequences and implications for spaces and/or species
- ☐ communicates thoughts/feelings/ideas clearly to justify choices/decisions made
- ☐ _____

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/Reporting	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection

Content

- ☐ provides a clear and concise statement of an issue regarding the management of a wildlife space and/or species
- ☐ describes social, political, scientific, ethical, economic and environmental perspectives related to the issue
- ☐ develops a logical argument and conclusions regarding a position taken on the issue, and provides a rationale for the position taken
- ☐ develops a plan of action for dealing with the issue at local and global levels
- ☐ provides a glossary of terms relevant to the issue

Content (continued)

- ☐ _____
  _____
  _____
  _____

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media:
  e.g., Written: spelling, punctuation, grammar, format (formal/informal, technical/literary)
  Oral: voice projection, body language, appearance, enthusiasm, evidence of prior practice
  Audio-Visual: techniques, tools, clarity, speed and pacing
- ☐ maintains acceptable grammatical and technical standards through proofreading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including seven or more relevant information sources

REFLECTIONS/COMMENTS

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KNOWLEDGE/APPLICATION ASSESSMENT: Principles of Wildlife Management — WLD3060–1

Assessment Criteria and Conditions:

- explaining the general objectives of wildlife management.

Suggested Reference(s):

- *The Nature of Canada: A Primer on Spaces and Species*
- *Project Wild*
- *Alberta Conservation and Hunter Education*

STANDARD: Respond to a minimum standard of 3 on the rating scale

Rating Scale

The student:

4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.

3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.

2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.

1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.

0 does not complete task, or is unable to provide a suitable response.

N/A Not applicable

Background Information

See *The Nature of Canada: A Primer on Spaces and Species*, Chapter 6: The 100 Per Cent Solution:

The 100 Per Cent Solution
- Q83: What is the "100 per cent solution"?
- Q84: Why is 12 per cent the target for protected areas?
- Q85: Why do we need stewardship as well as protection?

Setting Aside Protected Natural Areas
- Q86: What are protected natural areas?
- Q87: Who creates protected natural areas?
- Q88: What are the different kinds of protected natural areas?
- Q89: What are representative protected areas?
- Q90: What are critical natural areas?

Stewardship: Making Room for Wildlife
- Q94: What is a steward?
- Q95: Is good stewardship related to sustainable development?
- Q97: How are foresters helping wildlife?
- Q98: How are farmers helping wildlife?
- Q99: What are other landowners doing to help wildlife?
- Q100: What are cities doing to make more room for wildlife?
- Q101: What's being done to restore degraded ecosystems?
- Q102: What's being done to recover specific wildlife species?

Sample Questions/Activities

1. **Explain basic principles of ecology relevant to wildlife management**; e.g.:
   - habitat
   - succession
   - carrying capacity
   - limiting factors
   - disease and parasites
   - population dynamics.
2. **Define sustainable management within the context of wildlife spaces and species.**
3. **Identify major social, economic and environmental factors addressed through wildlife management.**
4. **Explain the mandates of the following agencies in making decisions involving wildlife in Canada:**
   - local government agencies
   - provincial government agencies
   - federal government agencies
   - private landowners.
5. **Explain processes for consultation and public involvement in wildlife management decisions.**

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Rating	INTERVIEW TECHNIQUE
	The student:
4 3 2 1 0	**Gathering and Recording Data** ☐ identifies and clearly states the interview topic ☐ accesses a range of relevant background information sources ☐ lists/formulates potential questions to be asked ☐ defines and limits each question to be asked ☐ records each interview response accurately with appropriate supporting detail and using correct technical terms ☐ _____
4 3 2 1 0	**Comprehension, Analysis and Synthesis** ☐ interprets, organizes and combines information in creative and thoughtful ways ☐ recognizes underlying bias,/assumptions/values expressed through each interview response ☐ summarizes each interview response in a concise and explicit way ☐ applies information gathered regarding wildlife management to other situations, spaces and/or species ☐ establishes conclusions regarding wildlife management principles based on the results of interview ☐ _____
4 3 2 1 0	**Information Sharing** ☐ demonstrates effective use of one or more communication media (e.g., written, oral, multi/media) ☐ communicates thoughts/feelings/ideas clearly ☐ maintains acceptable grammatical and technical standards ☐ _____

REFLECTIONS/COMMENTS

SAMPLE INTERVIEW QUESTIONS

- How are management goals established?
- How are limiting factors determined?
- What steps are used to establish a management plan for a particular space or species?
- Who identifies wildlife problems that need to be addressed through management?
- Why do wildlife spaces and/or species need to be managed?
- Who are the key stakeholder groups involved in management decisions?
- Does the historical background of a space or species affect management practices/decisions?
- How are management outcomes monitored to ensure consistency with management goals?
- How is the success of a particular management project evaluated?

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

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0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content
- ☐ provides a clear and concise statement of management goals and objectives
- ☐ identifies and describes basic steps involved in the management plan
- ☐ describes data collection and research techniques employed in developing the plan
- ☐ identifies political, social, economic, environmental, ethical and/or scientific perspectives addressed through the management plan

Content (continued)
- ☐ summarizes management strategies and/or tools employed in the management plan
- ☐ identifies positive and negative outcomes/ consequences, and potential conflicts with different stakeholder groups
- ☐ develops a position regarding the plan and provide a rationale for the position taken
- ☐ makes recommendations for dealing with the plan at the local level
- ☐ _____
- ☐ _____
- ☐ provides a glossary of terms relevant to the wildlife management plan

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing
- ☐ demonstrates effective use of a variety of communication media:
  e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing a range of relevant information sources

REFLECTIONS/COMMENTS

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Criteria for Assessing a Management Plan

The student:

- ☐ provides background information regarding management history and current status of the space or species
- ☐ provides a statement of short- and long-term goals for management
- ☐ identifies relevant social, economic and environmental factors that need to be addressed through the management plan
- ☐ presents a course of action for managing the space or species
- ☐ anticipates/predicts outcomes and impacts of management practices on targeted and other spaces/species
- ☐ develops strategies for monitoring actual outcomes and impacts of management practices
- ☐ prepares maps/diagrams/graphs/videotape footage to accompany and elaborate upon the management plan

STANDARD: Develop and present the plan to a standard of 3 on the rating scale

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

Sample Topics/Themes for A Management Plan

- The deer population in your community has increased dramatically. How will you manage this increasing population?
- There are gulls in the school yard. Why are they there? How can they be managed?
- How can interactions between the black bear and bee farmer be managed for the benefit of both?
- You are a cattle rancher in grizzly bear country. How can you manage cattle-bear interactions?
- How can local wetlands be managed for the benefit of ducks?
- You are a cattle rancher and need hay to feed your cattle. How can you manage hay cutting so as to maintain nesting grounds for ducks?
- How can a farmstead be managed for the benefit of wildlife? Which species benefit from shelter belts?
- How can wildlife interactions be managed around dams?
- How do forestry practices affect wildlife abundance and survival?
- How has the introduction of the cowbird affected the abundance of other bird species?
- How should short and tall prairie grass be managed?
- How does the practice of zero-tillage affect wildlife?
- What is the role of predator-control programs in wolf management?
- How do large windows affect the survival of bird species? What can be done to increase the survival of bird species around large windows?
- How does "Bucks for Wildlife" affect the survival of wildlife? Which species benefit?
- How is waterfowl survey data used to set bag limits?
- How does information obtained through the sale of hunting licences contribute to the management of wildlife?

Agencies to Contact for Further Information

Current wildlife management plans provide useful information regarding management processes, strategies and tools. Request information regarding existing management plans from:

- Ducks Unlimited
- Trout Unlimited
- Bull Trout Task Force
- Western Walleye Council
- Alberta Fish and Wildlife.

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Evaluating Choices and Making Decisions	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ accurately describes five current issues in wildlife on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding each of the issues
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Analyzing Perspectives
- ☐ categorizes different points of view regarding each of five issues in wildlife:
  e.g., cultural, ethical, economic, environmental, health-related, scientific, political
- ☐ states a position on each issue and insightful reasons for adopting that position
- ☐ states three or more opposing positions on each issue and thoughtful reasons for adopting those positions
- ☐ analyzes interrelationships among different perspectives/points of view
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork
- ☐ shares work appropriately among group members
- ☐ respects and considers the views of others
- ☐ negotiates with sensitivity solutions to wildlife management problems

Evaluating Choices/Making Decisions
- ☐ describes in detail important and appropriate alternatives regarding each of five wildlife issues
- ☐ establishes knowledge- and value-based criteria for assessing each alternative:
  e.g., social, economic, environmental
- ☐ selects an appropriate and useful alternative for each issue by showing differences among choices
- ☐ assesses strengths/weaknesses of decisions by considering consequences and implications for spaces and/or species
- ☐ communicates thoughts/feelings/ideas clearly to justify choices/decisions made
- ☐ _____
- ☐ _____

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING
Preparation and Planning	4 3 2 1 0 N/A
Information Gathering and Processing	4 3 2 1 0 N/A
Content	4 3 2 1 0 N/A
Collaboration and Teamwork	4 3 2 1 0 N/A
Information Sharing	4 3 2 1 0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content
- ☐ provides a clear and concise description of one international wildlife issue
- ☐ identifies the stakeholders involved and their respective points of view
- ☐ identifies and explains the positive and negative impacts of the issue on wildlife and on society
- ☐ provides a statement of personal position regarding the issue and a rationale for the position taken

Content (continued)
- ☐ suggests strategies or actions to respond to the issue; e.g.:
  - Who should use the resource and/or how much should be used?
  - How do various land users influence the long-term survival of this space or species?
  - What should be done to enhance the space or species?
  - What should be done in situations where there is conflict with humans?
- ☐ compare and contrast the issue with a similar issue in Canada and/or Alberta
- ☐ _____
  _____

Collaboration and Teamwork
- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing
- ☐ demonstrates effective use of a variety of communication media:
  e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing relevant information sources.

REFLECTIONS/COMMENTS

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TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/Reporting	4	3	2	1	0	N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning
- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection

Content
- ☐ provides a clear and concise statement of an issue regarding wildlife conservation and management
- ☐ explains why the issue is important by presenting examples of a range of possible consequences
- ☐ identifies and categorizes different points of view regarding the issue:
  e.g., social, economic, environmental, ethical, political
- ☐ recognizes underlying bias/assumptions/values in information and ideas
- ☐ states a position on the issue, and develops a logical argument and conclusion in support of the position taken

Content (continued)
- ☐ develops a plan of action for dealing with the issue at local and/or global levels
- ☐ provides a glossary of terms relevant to the issue
- ☐ _____
  _____

Presenting/Reporting
- ☐ demonstrates effective use of a variety of communication media;
  e.g., *Written:* *spelling, punctuation, grammar, format (formal/informal, technical/literary)*
  Oral *voice projection, body language, appearance, enthusiasm, evidence of prior practice*
  Audio-Visual *techniques, tools, clarity, speed and pacing*
- ☐ maintains acceptable grammatical and technical standards through proofreading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including relevant and current information sources

REFLECTIONS/COMMENTS

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WILDLIFE

SECTION H: LINKAGES/TRANSITIONS

This section of the Guide has been designed to provide an overview of linkages and transitions of CTS modules with a number of organizations. The charts and information presented in this section will assist CTS students and teachers in understanding the potential application of CTS modules as students move into the workplace.

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LINKAGES/TRANSITIONS

LINKAGES

With Other CTS Strands

The Wildlife strand provides opportunities for students to develop competencies in one or more wildlife-related areas, including:

- recreation
- tourism
- resource harvest
- literature, art and film
- conservation and management
- research.

Each Wildlife-related area links with competencies that are developed in other CTS strands. To facilitate and strengthen these linkages, courses may be designed by combining Wildlife modules with modules from other CTS strands (e.g., Agriculture, Community Health, Legal Studies, Forestry, Tourism Studies).

Linkages of particular relevance to the design of CTS courses in Wildlife include:

Strand	Themes and/or Modules
Agriculture	Modules within the "Management and Conservation" theme can be linked with a range of wildlife topics and issues (e.g., the value of wildlife, wildlife management, issue analysis, negotiation and debate).
Career Transitions	**Project modules** provide opportunities for learning beyond the expectations of given Wildlife modules. **Practicum modules** enable students to work toward obtaining credentials in recognized in the workplace/community. **Safety modules** provide opportunities to address safety skills relevant to wildlife-related pursuits. **Leadership modules** have application in a range of group activities conducted in outdoor wilderness environments.
Community Health	Modules within the "Injury Prevention" theme link with a range of competencies developed within the Wildlife strand.
Forestry	Modules within the "Management and Conservation" theme can be linked with a range of wildlife topics and issues (e.g., the value of wildlife, wildlife management, issue analysis, negotiation and debate).
Legal Studies	Modules within the "Societal Contexts" theme (e.g., Environmental Law, Dispute Resolution, Landmark Decisions) can be contextualized within areas of wildlife management.
Tourism Studies	Modules within the "Attractions" theme can be linked with the study of spaces and species (e.g., outdoor adventure, ecotourism).

It is important to note that the project, practicum and safety modules in Career Transitions may be combined with Wildlife modules to provide opportunities for students to:

- acquire safety competencies and credentials
- develop specific workplace skills
- expand upon a topic in a module or theme
- complete an investigation, project or service.

Additional information regarding connections with other CTS strands is provided in this section (see "Connections with Other CTS Strands").

Sample courses in Wildlife that include modules from other CTS strands are also provided in this section (see "Wildlife in Junior High" and "Wildlife in Senior High").

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With Other Secondary Programs

The Wildlife strand has many links with other core and complementary subject areas across the curriculum. For example, many of the modules in Wildlife link with the junior and senior high science programs, and provide opportunities for students to extend and apply related knowledge and skills in practical ways. Modules in the Wildlife strand also link with topics developed in the complementary junior high Environmental and Outdoor Education program.

Core and complementary course linkages of particular relevance to CTS courses in Wildlife include:

Course/ Program Area	Linkage/Connection
Language Arts	Application of the research process; development of reporting and oral/ multimedia presentation skills within a range of wildlife contexts.
Mathematics	Application of number operations, variables and equations, measurement (i.e., length, area, volume), statistics and probability to wildlife populations and management practices.
Science	Use of observation and experimentation; knowledge and theory of relevant topics in biology, ecology and earth science; analysis of relationships among science, technology, society and the environment.
Social Studies	Knowledge of the impact of social, economic and environmental perspectives on spaces and species; issue analysis, negotiation, debate and environmental citizenship within a range of wildlife contexts.
Physical Education	Application of personal fitness and outdoor survival skills to excursions in a wilderness environment.
Fine Arts	Knowledge and awareness of the significance of wildlife in art, music and drama.
Environmental and Outdoor Education	Application of outdoor and personal/group skills to activities conducted in wilderness environments; application of environmental knowledge/skills to wildlife spaces, species and management practices.
CALM	Awareness of career opportunities and trends; career research and preparation.

Additional information regarding connections between Wildlife modules and other core and complementary subject areas is provided in this section (see "Forestry: Connections Across the Curriculum").

A detailed correlation of the Wildlife strand to the Environmental and Outdoor Education program is also provided in this section (see "Wildlife: Correlations with Environmental and Outdoor Education 7, 8 and 9").

TRANSITIONS

To the Workplace

Intermediate and advanced modules are designed to develop knowledge, skills and attitudes that provide transitions to occupations in wildlife-related areas. Some career sectors welcome individuals who have basic skills and are prepared to learn through further training from the employer.

The National Occupational Classification (NOC) chart in this section indicates occupations for which the Wildlife strand provides a foundation (see "Wildlife: Related Occupations").

To Related Post-secondary Programs

Advanced level modules will assist students to make plans regarding further studies in wildlife at post-secondary levels. The Wildlife modules provide desirable background and skills for entry

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into related programs at public and private colleges, technical institutes, universities and vocational colleges in Alberta.

A summary of related programs currently offered at post-secondary institutions in Alberta is provided in this section (see Wildlife: Summary of Related Post-Secondary Programs").

A number of articulation agreements have been established with post-secondary institutions in Alberta. These agreements provide preferred entrance and/or advanced standing/credit for CTS students who have successfully completed designated modules. A current summary of articulation agreements in place that involve CTS modules is available through Alberta Education's web site at <http://ednet.edc.gov.ab.ca>. For further information regarding particular articulation agreements, contact the post-secondary institution and/or review its respective calendar.

CREDENTIALLING

Students may earn partial or complete credentials recognized in the workplace and/or post-secondary institutions by demonstrating specified competencies within the CTS curriculum. The Wildlife strand, in conjunction with modules from the Career Transitions strand, provides opportunities for students to develop competencies that link with a number of credentialling programs.

Of particular significance are credentials available through:

- First Aid certificate courses
- Alberta Environmental Protection and the WISE Foundation
- Alberta Tourism Education Council (ATEC) programs.

Teachers may wish to explore opportunities for linking courses in Wildlife with these and/or other credentialling programs. A partial list of credentialling opportunities relevant to CTS courses in Wildlife is provided in this section (see "Credentialling Opportunities in Wildlife").

Further information regarding these and other credentialling opportunities available to CTS students is provided in the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (see Appendix 14: Credentialling Opportunities in CTS), and also through Alberta Education's web site at <http://ednet.edc.gov.ab.ca>.

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LINKAGES – *Wildlife: Connections with Other CTS Strands*

Wildlife Modules	Agriculture	Career Transitions	Communication Technology	Community Health	Construction Technolgies	Cosmetology Studies	Design Studies	Energy and Mines	Electro-Technologies	Enterprise and Innovations	Fashion Studies	Financial Management	Foods	Fabrication Studies	Forestry	Legal Studies	Logistics	Information Processing	Managment and Marketing	Mechanics	Tourism Studies
	Other CTS Strands																				
Theme: Social and Cultural Perspectives																					
WLD1010: What is Wildlife?		▒													▒	▒		▒			▒
WLD1020: Natural History of Wildife		▒	▒												■			▒			▒
WLD1030: Outdoor Experiences 1		▒		■						▒					■	▒					■
WLD2020: Measuring the Value	▒	▒	▒					▒				▒	▒		■			▒			■
WLD2030: Outdoor Experiences 2		▒		■						▒					■	▒					■
WLD3020: Making a Difference	▒	▒	▒					▒							■			▒			▒
Theme: Technology and Applications																					
WLD2040: Wildlife Spaces & Species	▒	▒						▒							■			▒			■
WLD3040: Wildlife Research		▒							▒						■			▒			
Theme: Management and Conservation																					
WLD1050: Taking Responsibility	▒	▒	▒					▒							▒	▒		▒			▒
WLD1070: Hunting & Game Management 1		▒		■						▒					▒	▒					▒
WLD1080: Angling & Fish Management		▒		■						▒			▒		▒	▒					▒
WLD2060: Interactions	▒	▒						▒							▒			▒			■
WLD2070: Hunting & Game Management 2		▒		■						▒					▒	▒					▒
WLD2090: Issues in Wildlife 1	▒	▒						▒							▒	▒		▒			▒
WLD3050: Wildlife Management 1	▒	▒						▒	▒			▒			■	▒		▒			▒
WLD3060: Wildlife Management 2	▒	▒						▒	▒			▒			■	▒		▒			▒
WLD3090: Issues in Wildlife 2	▒	▒						▒							▒	▒		▒			▒

■ Provides many direct links with competencies in this strand. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical situations.

▒ Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.

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LINKAGES – *Wildlife in Junior High*

Course Emphasis	Wildlife Modules	Community Health Modules	Forestry Modules	Tourism Studies Modules
Literature, Art and Film (3 modules)	What is Wildlife? *WLD1010* Natural History of Wildlife *WLD1020*			The Attractions Sector *TOU1070*
Recreation (4 modules)	What is Wildlife? *WLD1010* Outdoor Experiences 1 *WLD1030* Outdoor Experiences 2 *WLD2030*	First Aid/ CPR *CMH2120*		
Resource Harvest (5 modules)	What Is Wildlife? *WLD1010* Hunting & Game Management 1 *WLD1070* Hunting & Game Management 2 *WLD2070* Taking Responsibility *WLD1050*	First Aid CPR *CMH2120*		
Conservation and Management (6 modules)	What Is Wildlife? *WLD1010* Wildlife Spaces & Species *WLD2040* Taking Responsibility *WLD1050* Issues in Wildlife 1 *WLD2090*		Forest Regions of Canada *FOR1020* Forests Forever 1 *FOR1100*	

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LINKAGES – *Wildlife in Senior High*

Course Emphasis	Wildlife Modules	Forestry Modules	Tourism Studies Modules	Career Transitions Modules
Basic Wildlife Management (3 credits) Prerequisite: None	What Is Wildlife? *WLD1010* Interactions *WLD2060*	Making a Difference *FOR2010*		
Advanced Wildlife Management (5 credits) Prerequisite: Basic Wildlife Management	Wildlife Research *WLD3040* Wildlife Management 1 *WLD3050* Wildlife Management 2 *WLD3060*	Managing Alberta Forests *FOR2030*		Project 2A *CTR2110*
Recreation and Tourism (5 credits) Prerequisites: Outdoor Experiences 1	Wildlife Spaces & Species *WLD2040* Outdoor Experiences 2 *WLD2030* Making a Difference *WLD3020*		Adventure & Ecotourism *TOU3110*	Workplace Safety *CTR2210*
Environmental Stewardship (3 credits) Prerequisite: Issues in Wildlife 1	Measuring the Value *WLD2020* Issues in Wildlife 2 *WLD3090*			Project 2A *CTR2110*

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LINKAGES – *Wildlife: Connections Across the Curriculum*

Across the Curriculum

Wildlife Modules	Junior High							Senior High											
	Language Arts	Social Studies	Mathematics	Science	Health & PLS	Physical Education	Fine Arts	English	Social Studies	Mathematics	Science (General)	Biology	Chemistry	Physics	CALM	Physical Education	Fine Arts	Social Sciences	Second Language
Theme: Social and Cultural Perspectives																			
WLD1010: What is Wildlife?	▒	▒		■				▒	▒		■	■			▒				
WLD1020: Natural History of Wildife	▒	▒		■				▒	▒		■	■							
WLD1030: Outdoor Experiences 1				▒		■										■			
WLD2020: Measuring the Value	▒	▒		▒				▒	▒		▒						▒		
WLD2030: Outdoor Experiences 2				▒		■										■			
WLD3020: Making a Difference	▒	▒		▒				▒	▒		▒						▒		
Theme: Technology and Applications																			
WLD2040: Wildlife Spaces & Species	▒			■				▒			■	■			■				
WLD3040: Wildlife Research	▒			■				▒			■	■			▒				
Theme: Management and Conservation																			
WLD1050: Taking Responsibility	▒	▒		▒				▒	▒		▒				▒		▒		
WLD1070: Hunting & Game Management 1	▒			■		▒		▒								▒			
WLD1080: Angling & Fish Management	▒			■		▒		▒								▒			
WLD2060: Interactions	▒	▒		▒				▒	▒		▒						▒		
WLD2070: Hunting & Game Management 2	▒			■		▒		▒								▒			
WLD2090: Issues in Wildlife 1	▒	▒		▒				▒	▒		■								
WLD3050: Wildlife Management 1	▒			▒				▒			■	■			▒				
WLD3060: Wildlife Management 2	▒			▒				▒			■	■			▒				
WLD3090: Issues in Wildlife 2	▒	▒		▒				▒	▒		■								

■ Provides many direct links with course content. Students will reinforce, extend and apply a substantial number of knowledge and skill components in practical contexts.

▒ Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.

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LINKAGES – *Wildlife: Correlations with Environmental and Outdoor Education 7, 8 and 9*★

Modules: CTS Wildlife

Topics / Themes: Environmental and Outdoor Education	What is Wildlife?	Natural History of Wildlife	Outdoor Experiences 1	Taking Responsibility	Hunting & Game Management 1	Angling & Fish Management	Measuring the Value	Outdoor Experiences 2	Wildlife Spaces & Species	Interactions	Hunting & Game Management 2	Issues in Wildlife 1	Making a Difference	Wildlife Research	Wildlife Management 1	Wildlife Management 2	Issues in Wildlife 2
OUTDOOR CORE																	
Regard for self, others and the environment			X		X	X		X			X						
Trip preparation and safety			X		X	X		X			X						
Safe and comfortable outdoor living skills			X		X	X		X			X						
Applying information for safe route planning			X					X									
Environmentally responsible outdoor activities			X		X	X		X			X						
Physical fitness for outdoor activities					X						X						
PERSONAL AND GROUP DEVELOPMENT																	
Respect and appreciation for self and others	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Setting realistic goals	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Personal communication skills	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Relationship of individuals to groups	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Group process skills	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ENVIRONMENTAL CORE																	
Diversity of environments and life forms	X	X		X			X		X								
Interactions within environments	X	X		X			X		X			X					X
Natural and human changes to the environment	X	X		X			X		X	X		X	X				X
Air, water and soil cycles	X			X			X										
The Sun as the primary energy source on Earth	X																
OUTDOOR EXPEDITIONS																	
Skill and judgment in outdoor expeditions			X		X	X		X			X						
Positive self-concept and regard for others			X		X	X		X			X						
Group problem solving and group living skills			X		X	X		X			X						
Regard for environments and responsible outdoor judgment			X		X	X		X			X						
ENVIRONMENTAL INVESTIGATIONS																	
Environmental investigation skills		X							X			X		X	X	X	X
Strategies for responding to environmental concerns				X			X		X	X		X	X		X	X	X
COMMITMENT TO ACTION																	
Outdoor recreation as part of healthy lifestyle			X					X									
Appreciation of environments through respectful use	X		X	X	X	X	X	X			X	X	X		X	X	X
Responsible use of local and global environments			X	X	X	X	X	X		X	X	X	X		X	X	X
Plans to make personal growth a lifelong process				X			X										

★September 1997: All practical arts courses replaced by Career and Technology Studies.

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TRANSITIONS – *Wildlife: Related Occupations*

Information for this chart was obtained from the National Occupational Classification (NOC) descriptions.

Educational Requirements:

D: High School Education
C: Apprenticeship
B: College or Vocational Education
A: University

STRAND-RELATED OCCUPATIONS		EDUCATION REQUIREMENTS			
Occupation Profile	NOC#	D	C	B	A
Animal Health Technologist	3231			✓	
Biochemist	2112				✓
Biological Technician	2221				✓
Biologist and Related Scientist	2121				✓
Botanist	2121				✓
Chemist	2112				✓
Conservation and Fishery Officer	2224			✓	
Environmental Auditor	2263				✓
Environmental Education Specialist	4169				✓
Environmental Engineer	2131/2148				✓
Hazardous Waste Management Technician	2263			✓	
Hydrologist	2113				✓
Inspectors in Public and Environmental Heath and Occupational Health and Safety	2263			✓	✓
Marine Biologist	2121				✓
Oceanographer	2113				✓
Park Warden/Park Ranger	2224			✓	
Pest Control Operator/Exterminator	7444		✓		
Pollution Control Technician	2211			✓	
Trappers and Hunters	8442	✓			
Veterinarian	3114				✓
Wildlife, Habitat and Fish Biologist	2121				✓

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LINKAGES – *Wildlife: Summary of Post-secondary Programs*

	PUBLIC COLLEGES									APPRENTICESHIP TRADE	PRIVATE COLLEGES				TECH. INST.		Banff	UNIVERSITIES				VOCATIONAL COLLEGES			
	Grande Prairie Regional College	Grant MacEwan Community College	Keyano College	Lakeland College	Lethbridge Community College	Medicine Hat College	Mount Royal College	Olds College	Red Deer College		Augustana University College	Canadian Union College	Concordia College	King's University College, The	Northern Alberta Institute of Technology	Southern Alberta Institute of Technology	Banff Centre	Athabasca University	University of Alberta	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake
Biological Sciences (including degree programs in Biochemistry, Biology, Botany, Entomology, Genetics, Microbiology & Zoology)	1t2t	2t		1t		1t2t	2t		2t		B	B	B	B				B	BMP hD	BMP hD	BM				
Biological Sciences/Biomedical Engineering Technology (certificate & diploma programs with various specializations)									1t						D										
Environmental Science (various specializations in Conservation & Reclamation, Environmental Monitoring & Conservation Enforcement, Fish & Wildlife, Parks & Recreation, and Renewable Resource/Watershed Management)			1t	D	CD			CD					B2t	B	D		V		B	CM	B				C(3 4w)
Environmental Technology/Water & Wastewater Technician							CD								C										C
Forestry, Forest Science/Technology	1t			1t		1t	1t		1t		1t		1t		D				BMP hD		1t				C
Forestry/Logging Operations																								C	VC
Petroleum/Mineral Resource/Land Management								D								V	V								
Leisure, Tourism & Society/Recreation Administration / Leisure (degree programs with various specializations)				C		1t			2t		1t		1t						BM	B	BM				
Physical Education (degree programs with various specializations)	2t	1t		1t		2t	D1t		2t		B	2t	1t						BMP hD	BM	BM				
Recreation, Leadership & Management/Leisure Services (certificate and diploma programs with various specializations)					CD	D	D									V								C	C

B	Bachelor's Degree	D	Diploma (2 years)	w	weeks
M	Master's Degree	V	Varies	m	months
Ph.D.	Doctoral Degree	1t	One-year transfer	y	years
C	Certificate (1 year or less)	2t	Two-year transfer		

*Information taken from "It's About Time: To Start Thinking About Your Future," Advanced Education and Career Development, 1995.

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CREDENTIALLING – *Credentialling Opportunities in Wildlife*

The following credentialling opportunities link with modules in the Wildlife strand. Further information (including current contacts) for these and other credentialling opportunities available to CTS students is available through Alberta Education's web site at <http://ednet.edc.gov.ab.ca>.

Credential/ Certificate	Training/ Credentialling Agency	Related CTS Strands/Modules	Program Description
Alberta Conservation and Hunter Education Program	Alberta Environmental Protection (Natural Resources Service) and the WISE Foundation	WLD1070: Hunting & Game Management 1 WLD2070: Hunting & Game Management 2	A provincially based credentialling program that examines the role of regulated hunting in managing Alberta wildlife. Deals with social and scientific aspects of hunting, and develops awareness of personal responsibilities while hunting or during related outdoor activities. The program has an optional field component that develops outdoor safety and survival skills.
Alberta Fishing Education Program	Alberta Environmental Protection (Natural Resources Service) and the WISE Foundation	WLD1080: Angling & Fish Management	A provincially based credentialling program that examines the role of recreational fishing in managing Alberta's fish resource. Deals with social and scientific aspects of fishing, and develops awareness of personal responsibilities while fishing or during related outdoor activities. The program has an optional field component that develops outdoor safety and survival skills.
Alberta Trapper Education Certificate	Alberta Trappers' Association	WLD3050: Wildlife Management 1 WLD3060: Wildlife Management 2 CTR3040–3080: Practicum Modules	A provincially based credentialling program that examines the role of regulated trapping in wild fur management. Assists individuals to meet the requirements established by Alberta Environmental Protection for obtaining a Trapping Licence.
Bear Awareness and Avoidance: • Basic • Advanced	Alberta Safety Council	WLD1030: Outdoor Experiences 1 WLD2030: Outdoor Experiences 2 CTR3040–3080: Practicum Modules CTR2210: Workplace Safety	A safety awareness program that offer certification at two levels. Each course deals with species recognition and bear biology, bear behaviour, avoiding bear problems and bear deterrents. Certificates are issued upon successful completion of an examination.

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CREDENTIALLING – *Credentialling Opportunities in Wildlife* (continued)

Credential/ Certificate	Training/ Credentialling Agency	Related CTS Strands/Modules	Program Description
First Aid in the Wilderness	St. John Ambulance	WLD1030: Outdoor Experiences 1 WLD2030: Outdoor Experiences 2 WLD1070: Hunting & Game Management 1 WLD2070: Hunting & Game Management 2 WLD1080: Angling & Fish Management CTR3040–3080: Practicum Modules CTR2210: Workplace Safety	A credentialling program designed for individuals who work, live or play in wilderness or remote areas. Deals with how to cope with emergencies and provide first aid in remote settings where medical services are not available. Certificates are issued upon successful completion of an examination.
Canadian Tourism Industry Certification: • Outdoor Guide • Freshwater Angling Guide • Hunting Guide	Alberta Tourism Education Council	WLD1030: Outdoor Experiences 1 WLD2030: Outdoor Experiences 2 CTR3040–3080: Practicum Modules	Industry-based certification programs that address standards established by the tourism industry. Certificates are awarded to individuals who demonstrate occupational standards through written and practical testing.
Canadian Firearms Safety Course	Alberta Justice (Chief Provincial Firearms Office)	WLD2070: Hunting & Game Management 2 CTR3040-3080: Practicum Modules	An entry-level credentialling program based on national standards for knowledge of firearms and firearms laws, and for safe firearm handling. Deals with all aspects of safe and responsible firearms ownership and use, but is not meant to teach marksmanship or shooting accuracy. Assists individuals to meet requirements for obtaining a Firearms Acquisition Certificate (FAC).

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WILDLIFE

SECTION I: LEARNING RESOURCE GUIDE

This section of the GSI has been designed to provide a list of resources that support student learning.

Three types of resources are identified:

- Authorized: Resources authorized by Alberta Education for CTS curriculum; these resources are categorized as basic, support, or teaching
- Other: Titles provided as a service to assist local jurisdictions to identify resources that contain potentially useful ideas for teachers. Alberta Education has done a preliminary review of these resources, but further review will be necessary prior to use in school jurisdictions
- Additional: A list of local, provincial and national sources of information available to teachers, including the community, government, industry, and professional agencies and organizations.

The information contained in this Guide, although as complete and accurate as possible as of June 1997, is time-sensitive.

For the most up-to-date information on learning resources and newer editions/versions, consult the LRDC *Buyers Guide* and/or the agencies listed in the Distributor Directory at the end of this section.

CTS is on the Internet.
Internet Address:
http://ednet.edc.gov.ab.ca

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INTRODUCTION

CTS AND THE RESOURCE-BASED CLASSROOM

Career and Technology Studies (CTS) encourages teachers to establish a resource-based classroom, where a variety of appropriate, up-to-date print and nonprint resources are available. Learning resources identified for CTS strands include print, software, video and CD-ROM formats. Also of significance and identified as appropriate throughout each strand are sources of information available through the Internet.

The resource-based classroom approach accommodates a variety of instructional strategies and teaching styles, and supports individual or small group planning. It provides students with opportunities to interact with a wide range of information sources in a variety of learning situations. Students in CTS are encouraged to take an active role in managing their own learning. Ready access to a strong resource base enables students to learn to screen and use information appropriately, to solve problems, to meet specific classroom and learning needs, and to develop competency in reading, writing, speaking, listening and viewing.

PURPOSE AND ORGANIZATION OF THIS DOCUMENT

The purpose of this document is to help teachers identify a variety of resources to meet their needs and those of the students taking the new CTS curriculum. It is hoped that this practical guide to resources will help teachers develop a useful, accessible resource centre that will encourage students to become independent, creative thinkers.

This document is organized as follows:

- Authorized Resources:
  - basic learning resources
  - support learning resources
  - teaching resources
- Other Resources
- Additional Sources
- Distributor Directory.

Some resources in the guide have been authorized for use in some or all of the CTS strands, e.g., the Career and Technology Studies video series produced by ACCESS: The Education Station. Further information is provided in relevant sections of this resource guide.

Each resource in the guide provides bibliographic information, an annotation where appropriate, and a module correlation to the CTS modules. The distributor code for each entry will facilitate ordering resources. It is recommended that teachers preview all resources before purchasing, or purchase one copy for their reference and additional copies as required.

Distributor Code	Resources		Levels/Mod. No.		
			1	2	3
ACC	Title	Author	1010	2010	3010
	Bibliographic Information				
	Annotation				

Distributor Code - see Distributor Directory

1 = Introductory
2 = Intermediate
3 = Advanced

Indicates module number

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HOW TO ORDER

Most authorized resources are available from the Learning Resources Distributing Centre (LRDC) at:

12360 – 142 Street
Edmonton, AB T5L 4X9
Telephone: 403–427–5775 (outside of Edmonton dial 310–0000 to be connected toll free)
Fax: 403–422–9750
Internet: http://ednet.edc.gov.ab.ca/lrdc

Please check LRDC for availability of videos.

RESOURCE POLICY

Alberta Education withdraws learning and teaching resources from the provincial list of approved materials for a variety of reasons; e.g., the resource is out of print; a new edition has been published; the program has been revised. Under section 44 (2) of the *School Act*, school boards may approve materials for their schools, including resources that are withdrawn from the provincial list. **Many school boards have delegated this power to approve resources to school staff or other board employees under section 45 (1) of the *School Act*.**

For further information on resource policy and definitions, refer to the *Student Learning Resources Policy* and *Teaching Resources Policy* or contact:

Learning Resources Unit, Curriculum Standards Branch
Alberta Education
5th Floor, Devonian Building, East Tower
11160 Jasper Avenue
Edmonton, AB T5K 0L2
Telephone: 403–422–4872 (outside of Edmonton dial 310–0000 to be connected toll free)
Fax: 403–422–0576
Internet: http://ednet.edc.gov.ab.ca

Note: Owing to the frequent revisions of computer software and their specificity to particular computer systems, newer versions may not be included in this guide. However, schools may contact the LRDC directly at 403–427–5775 for assistance in purchasing computer software.

Trademark Notices: Microsoft, Access, Excel, FoxPro, Mail, MS-DOS, Office, PowerPoint, Project, Publisher, Visual Basic, Visual C++, Windows, Windows NT, Word, and Works are either registered trademarks or trademarks of Microsoft Corporation. Apple, Mac, Macintosh, and Power Macintosh are either registered trademarks or trademarks of Apple Computer, Inc. Other brand and product names are registered trademarks or trademarks of their respective holders.

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AUTHORIZED RESOURCES

BASIC LEARNING RESOURCES

The following basic learning resources have been authorized by Alberta Education for use in the Wildlife curriculum. These resources address the majority of the learner expectations in one or more modules and/or levels. A curriculum correlation appears in the right-hand column.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*Alberta Conservation and Hunter Education.* Edmonton, AB: Alberta Forestry, Lands and Wildlife, AB Environmental Protection, 1989. This guide examines the role of regulated hunting in wildlife management and conservation. The resource serves as an identification guide to Alberta's game animals and develops awareness of personal responsibilities while hunting or during related outdoor activities. Topics addressed include: ethics and behaviour; wildlife management principles; personal/firearm/archery safety; outdoor survival techniques; first aid; and legal responsibilities.	1020 1030 1070	2040 2060 2070	3020
LRDC	*Alberta Fishing Education Program.* Edmonton, AB: Alberta Forestry, Lands and Wildlife, AB Environmental Protection. This guide examines the role of recreational fishing in the management and conservation of fish resources. The resource serves as an identification guide to Alberta's game fish, and develops awareness of personal responsibilities while fishing or during related outdoor activities. Topics addressed include: ethics and behaviour; management principles; fishing techniques and equipment; safety; and legal responsibilities.	1020 1030 1070 1080	2070	3020
LRDC	*Alberta Wildlife Viewing Guide.* Edmonton, AB: Lone Pine Publishing Company, 1990. This book will assist individuals to identify Alberta's important wildlife areas. It includes information about Alberta's National Parks, Provincial Parks, wildlife sanctuaries, natural areas and other designated viewing sites. This book discusses species likely to be encountered and provides maps that explain how to get to each site.	1020 1070	2040	
LRDC	*Ecosystems.* B. Herridge and B. Chernin. Gage Educational Publishing, 1995. The 72 page student text provides an illustrated introduction to ecosystems and a more in-depth look at living and non-living factors and the roles they play in ecosystems. The text concludes with examples of human impacts on ecosystems and examines current issues from a variety of perspectives. The 500 page teacher's resource book provides teaching ideas correlated to the student text and suggestions regarding evaluation, supplementary resources and integrated projects. Blackline masters, reproducible for classroom use, are provided.	1010 1020 1050	2020 2040 2060 2090	3020 3050 3090

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Basic Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*Global Environment, The.* Steven Sterling and Sue Lyle. Mississauga, ON: Copp Clark Pitman, 1991. This text addresses a broad range of environmental issues within a global context. Issues are examined through a variety of stimulating activities, including case studies, discussion and role-playing.	1050	2060 2090	3020 3090
LRDC	*Investigating Aquatic Ecosystems.* W.A. Andrews. Prentice Hall Canada/Ginn Publishing Co., 1987. This text reviews basic principles of ecology, then focuses attention on the ecology of freshwater and marine ecosystems. Each section includes investigative activities and key terms. Discussion questions and chapter reviews have been included throughout. The text is well illustrated with a variety of photographs, line drawing, tables and charts.	1010 1020 1080	2040 2060	3040
LRDC	*Investigating Terrestrial Ecosystems.* William A. Andrews. Scarborough, ON: Prentice-Hall Canada Inc., 1986. This student textbook focuses attention on the ecology of our planet and more specifically terrestrial ecosystems. The content is intended to assist students to identify and resolve environmental issues. The textbook investigates basic concepts of terrestrial ecosystems and examines specific biomes. Each chapter includes student-centred activities, case studies and suggestions for field studies.	1010 1020 1050 1070	2020 2040 2070 2090	3040 3090
LRDC	*Nature Alberta: An Illustrated Guide to Common Plants and Animals.* James Kavanaugh. Edmonton, AB: Lone Pine Publishing, 1991. This book is a layman's guide to common species of plants and animals in Alberta. Descriptions, illustrations and maps are grouped for ease of reference. The material is easily understood as technical terms are kept to a minimum. While not a comprehensive overview of Alberta's flora and fauna, the book provides basic information on common species.	1020 1070	2040	

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SUPPORT LEARNING RESOURCES

The following support learning resources are authorized by Alberta Education to assist in addressing some of the learner expectations of a module or components of modules.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*Birders of a Feather: For the Birds.* Vancouver, BC: T.H.A. Media Distributors Ltd., 1993. Video. This video deals with the ecotourism dilemma in Beaverhill Lake, Mount Verde and Point Pellee. The positive and negative effects that ecotourism brings to human and natural communities are vividly portrayed.		2060	
FEESA	*Boreal Forest Series.* Friends of the Environmental Education Society of Alberta (FEESA). FEESA, An Environmental Education Society, 1993-95. Videos. *Boreal Forest Issues, Boreal Forest I:* this 59-minute video explains the characteristics of Alberta's boreal forests, outlines the nature of forest use in society today, and examines strategies used in forest management. Issues surrounding the use of our boreal forests are analyzed from both economic and environmental perspectives. The need for responsible decision making in forestry-related areas is emphasized throughout the video. *Between the Stands, Boreal Forest II:* represents the second of three, one hour videos that provide insight into the importance of issues related to the development and use of the largest of Alberta's and Canada's terrestrial ecosystems - the Boreal Forest. The video presents the very different viewpoints of two young, well-educated and well-meaning people on issues of ecosystem-based management, forest regeneration, forest harvest and conservation. *A Forest of Values, Boreal Forest III:* represents the third video in a three-part series that provide insight into issues related to the development and use of the Boreal Forest. The video presents the viewpoints of two people with different backgrounds who live in a community affected by large-scale forest development which is helping to redefine community and lifestyle values. Topics addressed include habitat, decision making, traditional values and economics. Utilization guides are available (see teaching resources).	1010 1050	2020 2040 2060 2090	3020 3050 3060 3090
ACC	*Career and Technology Studies: Key Concepts.* Edmonton, AB: ACCESS: The Education Station. A series of videos and utilization guides relevant to all CTS strands. The series consists of: *Anatomy of a Plan; Creativity; Electronic Communication; The Ethics Jungle; Go Figure; Innovation; Making Ethical Decisions; Portfolios; Project Planning; Responsibility* and *Technical Writing.*	all	all	all

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
ENCA	*Conservation of Canadian Prairie Grasslands: A Landowner's Guide.* Garry C. Trottier. Edmonton, AB: Environment Canada, 1992. Booklet. This guide is intended for private landowners and public land leaseholders on the prairies. It provides ideas on how to retain native grass holdings in a productive condition for the benefit of land-users and wildlife. The guide promotes grassland conservation and illustrates the resulting benefits. The book challenges the idea of conversion of native grassland, and explains how economic return is possible without conversion.	1020 1030	2030 2040	
LRDC	*Forest is in Our Hands, The.* Edmonton, AB: Caterpillar Incorporated, 1991. Video. This video explores the need to make informed decisions regarding our use of forests and other natural resources. Information is presented in three parts: "Tending the Forest" (describes the science of silviculture); "Sharing the Forest" (explores the concept of multiple-use management); and "Sustaining the Forest" (examines the crucial area of decision making). Viewers are reminded that there are at least two sides to every issue. A print component entitled "Forest Facts: The Forest is in our Hands" is available in booklet format.		2060	
ENCA	*From the Mountains to the Sea – A Journey in Environmental Citizenship.* Ottawa, ON: Environment Canada, 1992. Booklet. This student booklet provides a brief directory of various "eco" activities that can be implemented in the community, home and/or school.		2090	3020 3090
LRDC	*Hard Edge, The.* CTE (Carlton). T.H.A. Media Distributors Ltd, 1990. Video. Southern African nations sharing the Zambesi river basin have agreed to an ambitious plan to conserve the region's natural resources. With this aim, aid projects in Zambia and Zimbabwe are trying to reconcile the needs of wildlife and people. A television "Trust for the Environment" program.	1050	2020 2040 2060 2090	3050
ACC	*If You Build It.* Winnipeg, MB: Ducks Unlimited Canada, 1991. Video (21 minutes). This video discusses the importance of wetlands in maintaining the health of ecosystems. An overview of human factors involved in wetland restoration is provided.	1010 1050	2020 2030 2060 2090	3020 3050 3060

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
KFL	*In Wildness: A Flight of Deer; A Pageant of Grouse; The Great Bears.* Karvonen Films Ltd. Three videos available on loan from Alberta Environmental Protection (Fish and Wildlife Services). *A Flight of Deer* was filmed in the mountains, prairies, and aspen parklands of Alberta. It investigates the lives and habitat of mule and whitetail deer. Biologists conduct a deer management survey. The importance of predators and scavengers is discussed. *A Pageant of Grouse* investigates the unusual mating habits of several members of the grouse family. The video focuses attention on: communal displays of prairie chicken, sharp-tailed and sage grouse in open grasslands; the solitary displays of ruffed, spruce and blue grouse in forest clearings; and the small white-tailed ptarmigan of the arctic tundra. *The Great Bears* looks at the two species of bears in North America: the black and the grizzly. The greater part of the video is devoted to the grizzly. Habitat, range (past and present), appearance and habits are all thoroughly examined for the grizzly. The video takes a close look at habitat destruction and its affect on the animals. "*The World of the Wily Black Bear*" introduces you to the most prosperous panhandler of the wild - the black bear. The video provides a factual account of this animals habitat and range, physical characteristics, social behavior, eating habits, predators, prey and lifecycle. Also explains are methods by which researchers obtain information enabling them to study this massive carnivore. The video aptly communicates the many different images generated by this creature through its interaction with a wide spectrum of the public (60 minutes). Note: This video references the practice of hunting black bears over bait. It should be explained to students that this practice, although controversial, is legal in Alberta in special circumstances and areas of the province as permitted by the Alberta Environmental Protection Agency.	1010 1020 1050	2040 2060 2090	3050 3090
ACC	*Life Cycle of Waterfowl.* Winnipeg, MB: Ducks Unlimited Canada, 1991. Video (24 minutes). This video discusses the importance of waterfowl as a natural resource, and the habitat features that make Alberta a primary area for waterfowl production. Provides a basic understanding of the life history and ecology of waterfowl. Patterns of duck migration routes are discussed.	1010 1020 1050	2020 2040 2060	

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
ACP	*Nature's Legacy: A Southwestern Safari.* Randy Tomiuk Productions Ltd./Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1995. Video. Examines the wildlife of Southwestern Alberta. Most of the region's shorebirds, prairie birds and raptors are shown. Some mammals are also examined. The emphasis is on identification and appreciation. A teacher's resource guide is available.	1020	2040	
ACP	*Nature's Legacy: Alberta's Grasslands and Parklands.* Randy Tomiuk Productions Ltd./ Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Video. This video describes the location, general features, history and unique wildlife common to two of Alberta's natural regions, the grasslands and parklands. Through natural photography and interviews, the video examines ecosystem dynamics within each natural region. Clearly, wildlife species shown in the video will only continue to exist if natural habitats within the grasslands and parklands are maintained. A teacher's resource guide is available.	1020	2040	
ACP	*Nature's Legacy: Prairie Wildlife: A Complex Web.* Randy Tomiuk Productions Ltd./ Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Video. This video introduces you to an often misunderstood creature that seems common, ordinary and of little value. Yet the Richardson's Ground Squirrel, or gopher, is vital to the survival of many prairie predators. The video examines the importance of this species to the delicate harmony of wildlife in Alberta's prairie grassland. A teacher resource guide is available.	1020	2040	
ACP	*Nature's Legacy: Wildlife at Risk.* Randy Tomiuk Productions Ltd./Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Video. This video describes the five categories of wildlife species at risk in Canada (i.e., vulnerable, threatened, endangered, extirpated, extinct). Through natural photography and interviews, the video examines local wildlife species within each category, and factors contributing to their current status. Also explored are programs for the sustainable management of local species at risk. A teacher resource guide is available.	1020	2040	

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*New Leaf, A: Real Sustainability for the Boreal Forest.* Karen Baitgailis and Barbara Allard. Western Canada Wilderness Committee, 1993. Video. This video proposes a plan for Alberta's boreal forest. Current forestry mega projects are shown to be unsustainable, both environmentally and economically. The video provides a model for integrated, small scale, labour intensive economic development for northern Alberta that includes nature tourism, horse and machine selective logging, small sawmills, value-added wood products manufacturing and clean pulp mills. The focus of this video supports environmental concerns taking precedence over economic development. Teachers should be prepared to provide a balance in perspective.		2040 2090	3020 3090
MLP	*Night Moves: Owls in Fact and Fantasy.* Missing Link Productions Inc., 1995. Video. This video examines the structural, physiological and behavioural adaptations of owls. It provides background information regarding the history and mystery of owls, explores habits of the Great Grey Owl in Northern Canada, and follows the burrowing Owl to its winter home in Mexico. The program provides information suited to species research, issue analysis and wildlife management.	1010 1020 1050	2020 2040 2060 2090	3020 3040 3050 3090
LRDC	*One Minute Readings: Issues in Science, Technology and Society.* R.F. Brinckerhoff. Don Mills, ON: Addison-Wesley Publishing Company, 1992. Textbook. This book contains readings and questions related to issues in science, technology and society. Applications of science are raising difficult questions and are creating problems that cannot be answered. The book is intended to give students practice in making the kinds of decisions they will experience in life. Students need a knowledge of science to find the best possible answers. An teacher's manual is available.		2090	3020 3090
LRDC	*Peregrines (For The Birds).* Vancouver, BC: T.H.A. Media Distributors Ltd., 1993. Video. This video outlines what is being done to rebuild a failing population of falcons in Alberta.		2040 2060 2090	3020 3090
LRDC	*Place For Wildlife, A: A Way Is No Longer There.* Edmonton, AB: ACCESS: The Education Station, 1990. Video. This video was produced with the goal of increasing public understanding of pressures facing Canadian wildlife; in particular, the continuing loss of habitat. The program features "A Way Is No Longer There", an original song about the common fate of wildlife and humans in our changing environment. A utilization guide in print format is available to teachers.	1050 1070	2060 2070 2090	3090

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
ENCA	*Prairie Habitat: A Prospectus.* Ottawa, ON: North American Waterfowl Management Plan, Environment Canada, 1986. Booklet. This document encourages Canadian/USA co-operation in land conservation programs in order to enhance/restore waterfowl and other wildlife habitat.		2060	3040 3050 3060
ACC	*Precarious Perch: The Wood Stork Story.* Georgia Dept. Natural Resources. New Dimensions Media, 1994. Video. This video explains reasons for the dramatic decline of wood stork populations in the United States. It captures the daily routine of this endangered species and those environmental factors threatening its survival. Provides a useful comparative to endangered species in other parts of the world.	1020 1050	2020 2040 2060	
ENCA	*Priority Migratory Bird Habitats of Canada's Prairie Provinces.* Edmonton, AB: Environment Canada, 1990. Booklet. This booklet provides lists, maps and tables of important (ranked) habitat areas and sites for the staging, moulting and breeding of migratory birds. The book also provides information about endangered, rare and threatened bird habitats.		2060	3040 3050 3060
ACC	*Run, Sockeye, Run: The Life Cycle of the Sockeye Salmon.* Insights and Sound Creations. Moving Images Distribution, 1995. In this video a computer animated salmon coaches a "team" of sockeye getting ready to embark on the arduous upstream journey to their spawning grounds. The salmon prepares them for what lies ahead by detailing the amazing life cycle of the Adam's River sockeye. The video features spectacular footage of the salmon run up the Fraser River, underwater closeups of spawning activities including males battling for the opportunity to mate, and a birth sequence of mature salmon embryos.	1020 1080	2040 2060 2090	
LRDC	*Shelters.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet. This booklet develops knowledge of planned and emergency shelters essential to outdoor experiences. Topics addressed include site selection, summer and winter constructed shelters, tents, bivouac sacks, improvised and permanent shelters.	1030	2030	

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*Singing In The Rain Forest (Warblers) For The Birds.* Vancouver, BC.: T.H.A. Media Distributors Ltd., 1993. Video. This video describes the plight of many North American (Boreal) songbirds. Warblers are the main focus of attention. It provides a good overview of the birds' life cycle and migratory patterns. The video should be viewed with the understanding that many factors have attributed to the warblers' population decline, (e.g., forest fires, urban expansion, agriculture).	1070	2040 2060 2090	3090
LRDC	*Snow Camping: The Complete Guide to Enjoying the Back Country.* J.A. Creore. Lone Pine Publishing, 1992. This book explains how to camp in the winter, even in the snow, and enjoy it. Topics include choosing the proper equipment and clothing, food preparation, shelter, trip planning and survival, loading a pack and dealing with emergencies (e.g., injury, hypothermia, avalanches). The author is a recognized expert and has many trip stories and interesting suggestions to share.	1030	2030	
LRDC	*St. John Ambulance Knots and Whatnots: First Aid in the Wilderness Course Supplement.* St. John Ambulance, 1996. This well illustrated booklet provides information and skills that will enhance an individual's ability to provide care in a remote setting when removed from medical aid. The book deals with pre-trip planning, wilderness skills, animals to avoid and medical evacuation. The content complements the training program "First Aid in the Wilderness".	1030 1070 1080	2030 2070	
LRDC	*St. John Ambulance Official Wilderness First-Aid Guide.* W. Merry. St. John Ambulance. McClelland & Stewart Inc., 1996. This book is a comprehensive guide to meeting the special challenge of a medical emergency in the wilderness areas of the northern U.S., Canada, and all other regions with a similar range of weather conditions. It takes you step-by-step through vital first-aid procedures, using language that is easy to understand and more than 130 illustrations. It contains information on cold exposure, bear attacks, dental emergencies, burns, gunshot wounds, broken bones, cleaning contaminated wounds and mushroom, berry and food poisoning.	1030 1070 1080	2030 2070	
LRDC	*This Living World: The Forest.* Edmonton, AB: Recreation, Parks and Wildlife Foundation, 1992. Video. The video presents a historical perspective on the development of forests and the forest industry in Canada. Because forests provide homes for wildlife and serve many uses for humans, it is necessary to protect and conserve them.	1050 1070	2060 2070 2090	3090

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Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*This Living World: Wildlife Habitat.* Edmonton, AB: Recreation, Parks and Wildlife Foundation, 1992. Video. This video informs viewers of the importance of "habitat" for living things. Interviews provide insight on issues concerning wildlife and its habitat (e.g., the need for ecological literacy, how habitat affects quality of life, the worldwide disappearance of natural habitats).		2040 2060 2090	3020 3040 3050 3060 3090
LRDC	*Trees.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1992. Booklet. This booklet provides a variety of environmental investigations that are suited to the classroom and school yard. The investigations involve students in hands-on and participatory learning situations.	1020 1030	2030 2040	
DUCK	*Wetland Environments.* Lloyd Pearce. Edmonton, AB: Ducks Unlimited Canada, 1991. Kit. This educational kit addresses the following topics: wetlands ecology; wetlands habitats; wetland and waterfowl; wetland conservation and wetland environmental issues. The central focus is on problem-oriented investigation involving research, experimental procedure and field experiences. The kit includes student materials, teacher notes and video resources.	1010 1020 1070	2040 2090	3020 3050 3060 3090
ENCA	*Wildlife Habitat: A Handbook for Canada's Prairies & Parklands.* Edmonton, AB: Canadian Wildlife Service, Environment Canada, 1981. Booklet. This handbook provides suggestions for habitat improvement, management and development (both terrestrial and aquatic). The booklet deals with minor wildlife problems, legal concerns and co-operating agencies.		2040 2090	3040 3090
ENCA	*Wildlife Policy for Canada, A.* Ottawa, ON: Canadian Wildlife Service, Environment Canada, 1990. Booklet. This document is an abridged version of provincial, federal, territorial and non-governmental policies and programs that affect wildlife.	1010 1050 1070	2020 2070	3050 3060
LRDC	*Working With Whales.* Pickford. T.H.A. Media Distributors Ltd., 1993. Video. This compelling documentary examines the moral issues surrounding the capture and exhibition of whales by aquariums. Archival footage is used to trace the often cruel history of whale captivity, documenting numerous incidents where both whales and trainers were injured or killed. This video serves as an excellent starting point for discussion about the morality of confining wild animals, the difference between education and entertainment, and our relationship to nature.	1050	2060 2090	3050

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TEACHING RESOURCES

The following support learning resources are authorized by Alberta Education to assist in addressing some of the learner expectations of a module or components of modules.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
FEESA	*Boreal Forest Series.* Edmonton, AB: Friends of the Environmental Education Society of Alberta (FEESA), 1993/95. Utilization Guides. See Support Learning Resources for annotation and module correlation.			
LRDC	*Ecology Studies of Lakes in Alberta.* Edmonton, AB: Alberta Environment, 1988. Resource materials include book and teacher's package, 1989. This print package deals with the ecology of freshwater environments. The unit of study discusses human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops on how to use the materials are provided by Alberta Environment.	1010 1080	2040	3040
LRDC	*Ecosystems.* B. Herridge and B. Chernin. Gage Educational Publishing, 1995. Teacher's Resource. See Basic Learning Resources for annotation and module correlation.			
LRDC	*Importance of Wildlife to Canadians in 1987, The: Trends in Participation in Wildlife-Related Activities, 1981 to 2006.* F.L. Filion, et al. Ottawa, ON: Environment Canada, Canadian Wildlife Service, 1988. Booklet. This booklet addresses the consumptive and non-consumptive use of wildlife. It provides factual content that would be useful for individual student research and investigation.		2020 2040 2060 2090	3020 3040 3050 3060 3090
LRDC	*National Occupational Standards For the Canadian Tourism Industry: Outdoor Guide.* Edmonton, AB: Alberta Tourism Education Council, 1991. Teacher booklet. Contains competency standards that the tourism industry deems necessary for effective performance in the occupation of Outdoor Guide. The standards establish a base from which certification programs can be developed.	1030	2030	
ACP	*Nature's Legacy: A Southwestern Safari.* Randy Tomiuk Productions Ltd./Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1995. Teacher's Resource Guide. **Note**: Ensure that a balanced viewpoint is presented regarding the drainage of wetlands. See Support Learning Resources for annotation and module correlation.			

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Teaching Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
ACP	*Nature's Legacy: Alberta's Grasslands and Parklands.* Randy Tomiuk Productions Ltd./ Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Teacher's Resource Guide. See Support Learning Resources for annotation and module correlation.			
ACP	*Nature's Legacy: Prairie Wildlife: A Complex Web.* Randy Tomiuk Productions Ltd./ Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Teacher's Resource Guide. See Support Learning Resources for annotation and module correlation.			
ACP	*Nature's Legacy: Wildlife at Risk.* Randy Tomiuk Productions Ltd./Wildhorse Productions/R&L Peregrine Productions/Amoco Petroleum Co. Ltd., 1996. Teacher's Resource Guide. See Support Learning Resources for annotation and module correlation.			
SSC	*North American Waterfowl Management Plan, A Strategy for Cooperation.* Ottawa, ON: Minister of Supply and Services Canada, 1986. Booklet. Because of alarming decreases in some waterfowl populations, a co-operative effort between Canadian and USA governments has resulted in the formation of North American Waterfowl Management Plan (NAWMP). This plan is a guideline for government and private organizations to focus on habitat reclamation and waterfowl management.			3050 3060
LRDC	*One Minute Readings: Issues in Science, Technology and Society.* R.F. Brinckerhoff. Don Mills, ON: Addison-Wesley Publishing Company, 1992. Teacher's Manual. This book contains readings and questions related to issues in science, technology and society. Applications of science are raising difficult questions and are creating problems that cannot be answered. The book is intended to give students practice in making the kinds of decisions they will experience in life. Students need a knowledge of science to find the best possible answers.		2090	3020 3090

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Teaching Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	*Orienteering, Level I.* R. Robertson. Calgary, AB: Calgary Board of Education, 1982. Booklet. This booklet is designed to develop locomotor skills, map skills and space/time skills as they relate to orienteering. By using a variety of maps, the student's ability to "find his/her way" is developed. Activities for rural and urban geographical areas have been included.	1030	2030	
LRDC	*Orienteering, Level II.* R. Robertson. Calgary, AB: Calgary Board of Education, 1980. Booklet. This booklet is designed to add the use of a compass to the fundamental orienteering skills of map reading, map making and map orientation. Activities address physical fitness and skills, knowledge and understanding, social skills, attitudes and appreciation. The material has been prepared for junior and senior high school students.	1030	2030	
LRDC	*Personal Equipment.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet. This booklet examines the role of personal equipment (its selection and use) in safe and comfortable outdoor experiences. Topics addressed include temperature regulation, essential equipment for various situations, selection of quality equipment, sources of equipment, care and maintenance of equipment, packing equipment and safety considerations.	1030	2030	
LRDC	*Project Wild Activity Guide.* Ottawa, ON: Canadian Wildlife Federation, 1993. This book provides a collection on interdisciplinary environmental education materials and activities that emphasize wildlife conservation and environmental stewardship. Activities are indexed by topic, grade, subject and skill, and foster responsible behaviour and constructive actions concerning wildlife and the environment.	all	all	all
LRDC	*Trip Planning.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1984. Booklet. This booklet outlines essential steps in planning successful outdoor education experiences. Planning should be based on an understanding of the potential hazards in the wilderness environment. The isolation factor of an outdoor trip shows the need for knowledge of emergency response, first aid and evacuation procedures. The booklet provides basic knowledge for the safety and enjoyment of outdoor experiences.	1030	2030	

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WILDLIFE RESOURCES

THEME CODE:
A. Social & Cultural Perspectives
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C. Management & Conservation

STATUS CODE:
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S - Support
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LEVEL CODE:
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2 - Intermediate
3 - Advanced

FORMAT CODE:
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v - Video
s - Software

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LEVEL				1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3
THEME				A	A	A	C	C	C	A	A	B	C	C	C	A	B	C	C	C
Module Number	*Format*	*Status*	*Junior/Senior High*	1010 What Is Wildlife?	1020 Natural History of Wildlife	1030 Outdoor Experiences 1	1050 Taking Responsibility	1070 Hunting & Game Management 1	1080 Angling & Fish Management	2020 Measuring the Value	2030 Outdoor Experiences 2	2040 Wildlife Spaces & Species	2060 Interactions	2070 Hunting & Game Management 2	2080 Issues in Wildlife 1	3020 Making a Difference	3040 Wildlife Research	3050 Wildlife Management 1	3060 Wildlife Management 2	3090 Issues in Wildlife 2
Alberta Conservation and Hunter Education	*p*	B	J/S		X	X		X				X	X	X		X				
Alberta Fishing Education Program	*p*	B	J/S		X	X		X	X					X		X				
Alberta Wildlife Viewing Guide	*p*	B	J/S		X			X				X								
Birders of a Feather: For the Birds	*v*	S	S										X							
Boreal Forest Series				X			X			X		X	X		X	X		X	X	X
Boreal Forest Issues, Boreal Forest I	*v*	S	J/S																	
Between the Stands, Boreal Forest II	*v*	S	J/S																	
A Forest of Values, Boreal Forest III	*v*	S	J/S																	
Utilization Guides	*p*	T	J/S																	
Conservation of Canadian Prairie Grasslands: A Landowner's Guide	*p*	S	J/S		X	X					X	X								
Ecology Studies of Lakes in Alberta	*p*	T	J/S	X					X			X					X			
Ecosystems				X	X		X			X		X	X		X	X		X		X
Text	*p*	B	J/S																	
Teacher's Resource	*p*	T	J/S																	
Forest is in Our Hands, The	*v*	S	S										X							
From the Mountains to the Sea - A Journey in Environmental Citizenship	*p*	S	S												X	X				X
Global Environment, The	*p*	B	J/S				X						X		X	X				X
Hard Edge, The	*v*	S	J/S				X			X		X	X		X			X		
If You Build It	*v*	S	J/S	X			X			X	X		X		X	X		X	X	
Importance of Wildlife to Canadians In 1987, The: Trends in Participation in Wildlife-Related Activities, 1981 to 2006	*p*	T	S							X		X	X		X	X	X	X	X	X
Investigating Aquatic Ecosystems	*p*	B	J/S	X	X				X			X	X				X			
Investigating Terrestrial Ecosystems	*p*	B	J/S	X	X		X	X		X		X		X	X		X			X
In Wildness:				X	X		X					X	X		X			X		X
A Flight of Deer	*v*	S	J/S																	
A Pageant of Grouse	*v*	S	J/S																	
The Great Bears	*v*	S	J/S																	
World of The Wily Black Bear	*v*	S	J/S																	
Life Cycle of Waterfowl	*v*	S	J/S	X	X		X			X		X	X							
National Occupational Standards for the Canadian Tourism Industry: Outdoor Guide	*p*	T	J/S			X					X									
Nature Alberta: An Illustrated Guide to Common Plants and Animals	*p*	B	J/S		X			X				X								
Nature's Legacy: A Southwestern Safari					X							X								
Video	*v*	S	J/S																	
Teacher's Resource Guide	*p*	T	J/S																	
Nature's Legacy: Alberta's Grasslands and Parklands					X							X								
Video	*v*	S	J/S																	
Teacher's Resource Guide	*p*	T	J/S																	

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LEVEL				1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3
THEME				A	A	A	C	C	C	A	A	B	C	C	C	A	B	C	C	C
	Format	*Status*	*Junior/Senior High*	What Is Wildlife?	Natural History of Wildlife	Outdoor Experiences 1	Taking Responsibility	Hunting & Game Management 1	Angling & Fish Management	Measuring the Value	Outdoor Experiences 2	Wildlife Spaces & Species	Interactions	Hunting & Game Management 2	Issues in Wildlife 1	Making a Difference	Wildlife Research	Wildlife Management 1	Wildlife Management 2	Issues in Wildlife 2
Module Number				1010	1020	1030	1050	1070	1080	2020	2030	2040	2060	2070	2090	3020	3040	3050	3060	3090
Nature's Legacy: Prairie Wildlife: A Complex Web					X							X								
Video	*v*	S	J/S																	
Teacher's Resource Guide	*p*	T	J/S																	
Nature's Legacy: Wildlife at Risk					X							X								
Video	*v*	S	J/S																	
Teacher's Resource Guide	*p*	T	J/S																	
New Leaf, A : Real Sustainability for the Boreal Forest	*v*	S	S									X			X	X				X
Night Moves: Owls in Fact and Fantasy	*v*	S	J/S	X	X		X			X		X	X		X	X	X	X		X
North American Waterfowl Management Plan, A Strategy for Cooperation	*p*	T	S															X	X	
One Minute Readings: Issues in Science, Technology and Society															X	X				X
Text	*p*	S	S																	
Teacher's Manual	*p*	T	S																	
Orienteering, Level I	*p*	T	J/S			X					X									
Orienteering, Level II	*p*	T	J/S			X					X									
Peregrines (For the Birds)	*v*	S	S									X	X		X	X				X
Personal Equipment	*p*	T	J/S			X					X									
Place For Wildlife, A: A Way is No Longer There	*v*	S	J/S				X	X					X	X	X					X
Prairie Habitat: A Prospectus	*p*	S	S										X				X	X	X	
Precarious Perch: The Wood Stork Story	*v*	S	J/S		X		X			X		X	X							
Priority Migratory Bird Habitats of Canada's Prairie Provinces	*p*	S	S										X				X	X	X	
Project Wild Activity Guide	*p*	T	J/S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Run, Sockeye, Run: The Life Cycle of the Sockeye Salmon	*v*	S	J/S		X				X			X	X		X					
Shelters	*p*	S	J/S			X					X									
Singing In The Rain Forest (Warblers)For the Birds	*v*	S	J/S					X				X	X		X					X
Snow Camping: The Complete Guide to Enjoying the Back Country	*p*	S	J/S			X					X									
St. John Ambulance Knots and Whatnots: First Aid in the Wilderness Course Supplement	*p*	S	J/S			X		X	X		X			X						
St. John Ambulance Official Wilderness First-Aid Guide	*p*	S	J/S			X		X	X		X			X						
This Living World: The Forest	*v*	S	J/S				X	X					X	X	X					X
This Living World: Wildlife Habitat	*v*	S	J/S									X	X		X	X	X	X	X	X
Trees	*p*	S	J/S		X	X					X	X								
Trip Planning	*p*	T	J/S			X					X									
Wetland Environments	*p*	S	J/S	X	X			X				X			X	X		X	X	X
Wildlife Habitat: A Handbook for Canada's Prairies & Parklands	*p*	S	S									X			X		X			X
Wildlife Policy for Canada, A	*p*	S	J/S	X			X	X		X				X				X	X	
Working With Whales	*v*	S	J/S				X						X		X			X		

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Module Number	*Format*	*Status*	*Junior/Senior High*	1010 What Is Wildlife?	1020 Natural History of Wildlife	1030 Outdoor Experiences 1	1050 Taking Responsibility	1070 Hunting & Game Management 1	1080 Angling & Fish Management	2020 Measuring the Value	2030 Outdoor Experiences 2	2040 Wildlife Spaces & Species	2060 Interactions	2070 Hunting & Game Management 2	2090 Issues in Wildlife 1	3020 Making a Difference	3040 Wildlife Research	3050 Wildlife Management 1	3060 Wildlife Management 2	3090 Issues in Wildlife 2
OTHER RESOURCES																				
Alberta's Threatened Wildlife Series	*p*	O	J/S	X	X		X			X		X			X			X	X	X
Alberta's Watchable Wildlife Series	*p*	O	J/S		X			X				X		X						
Animal Tracks of Western Canada	*p*	O	J/S	X		X					X	X								
Atlas of Breeding Birds of Alberta	*p*	O	J/S		X			X				X		X						
Benefits of Wildlife, The	*p*	O	S							X						X				
Butterflies of Alberta	*p*	O	J/S		X							X								
Canoeing	*p*	O	J/S			X					X									
Canoe Tripping	*p*	O	J/S			X					X									
Caring For the Land Teaching Kit (Grades7-9)	*p*	O	J				X													
Compact Guide to Birds of the Rockies, The	*p*	O	J/S	X	X	X					X	X								
Compact Guide to Wildflowers of the Rockies	*p*	O	J/S	X	X	X					X	X								
Dictionary of Natural Resource Management	*p*	O	J/S	X			X			X					X	X	X	X		X
Earth Keepers: Four Keys for Helping Young People Live in Harmony With the Earth	*p*	O	J/S			X	X			X	X					X				
Earth Walks: Acclimatization for a Sensory Encounter with the Natural World	*p*	O	J/S			X	X			X	X					X				
Endangered Species in Canada	*p*	O	S									X	X		X					X
Environmental Citizenship Series: Nature of Canada, The: A Primer on Spaces and Species	*p*	O	J/S	X			X	X					X	X	X			X	X	X
Environmental Citizenship Series: A Primer on Environmental Citizenship	*p*	O	J/S				X			X			X			X				
Feather Care's Volunteer Guide	*p*	O	S													X				
Federal Policy on Wetland Conservation, The	*p*	O	S									X	X					X	X	
Fifty More Things You Can Do To Save the Earth	*p*	O	J				X													
Fires & Stoves	*p*	O	J/S			X					X									
Fishes of Alberta, The	*p*	O	J/S		X				X			X								
Focus On Series (10 Booklets)	*p*	O	J/S				X								X	X				X
Framework for Alberta's Special Places, A (Natural Regions Report No. 1)	*p*	O	S									X			X	X				X
Freshwater Ecosystems	*p*	O	J/S		X	X					X	X								
Green Future: How To Make A World of Difference	*p*	O	S												X	X				X
Green Guide, The (Series I and II)	*v*	O	S										X		X	X				X
Guide to the Amphibians and Reptiles of Alberta, A	*p*	O	J/S		X							X								
Guide to the Common Native Trees and Shrubs of Alberta	*p*	O	J/S	X	X	X					X									

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Module Number	*Format*	*Status*	*Junior/Senior High*	1010 What Is Wildlife?	1020 Natural History of Wildlife	1030 Outdoor Experiences 1	1050 Taking Responsibility	1070 Hunting & Game Management 1	1080 Angling & Fish Management	2020 Measuring the Value	2030 Outdoor Experiences 2	2040 Wildlife Spaces & Species	2060 Interactions	2070 Hunting & Game Management 2	2090 Issues in Wildlife 1	3020 Making a Difference	3040 Wildlife Research	3050 Wildlife Management 1	3060 Wildlife Management 2	3090 Issues in Wildlife 2
Hinterland Who's Who (Series)	*p*	O	J/S		X			X				X		X						
How Green Is Your School?	*p*	O	J/S				X								X	X				X
Human Environments	*p*	O	J/S			X					X		X							
Identification Guide to Alberta Aquatic Plants, An	*p*	O	J/S	X	X				X			X								
Kananaskis Country Environmental Education Teaching Activity Guide: Earth Science	*p*	O	J/S			X					X									
Land Conservation Education Program	*p*	O	J/S				X						X		X	X				X
Mammals of the Northern Rockies	*p*	O	J/S		X							X								
Mosses Lichens & Ferns of Northwest North America: A Photographic Field Guide	*p*	O	J/S		X	X					X	X								
Natural Regions of Alberta: Poster Series	*p*	O	J/S	X	X							X								
Navigation	*p*	O	J/S			X					X									
Nest Boxes for Alberta Birds	*p*	O	J		X		X													
Nutrition	*p*	O	J/S			X					X									
Planting Trees for Wildlife	*p*	O	J/S				X					X	X			X				
Sunship Earth: An Acclimatization Program for Outdoor Learning	*p*	O	J/S			X	X			X	X					X				
Trees and Shrubs of Alberta: A Habitat Field Guide	*p*	O	J/S	X	X	X					X	X								
Water in Alberta: The Living Flow	*p*	O	S									X			X		X			X
Water Quality Questions: The Nature and Importance of Water Quality Variables in Alberta	*p*	O	J/S				X						X		X	X				X
Wetlands	*p*	O	J/S				X								X			X	X	X
What We Can Do For Our Environment: Hundreds of Things To Do Now	*p*	O	J/S				X								X	X				X
Working With Wildlife - A Volunteers Directory	*p*	O	S													X				

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OTHER RESOURCES

These titles are provided as a service only to assist local jurisdictions to identify resources that contain potentially useful ideas for teachers. Alberta Education has done a preliminary review of the resources. However, the responsibility to evaluate these resources prior to selection rests with the user, in accordance with any existing local policy.

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
EPPC	*Alberta's Threatened Wildlife Series.* Edmonton, AB: Alberta Environmental Protection. Factsheet Series.	1010 1020 1050	2020 2040 2090	3050 3060 3090
EPPC	*Alberta's Watchable Wildlife Series.* Edmonton, AB: Alberta Environmental Protection. Pamphlet series.	1020 1070	2040 2070	
LLP	*Animal Tracks of Western Canada.* J.E. Barwise. Lone Pine Publishing, 1989. An easy-to-use guide to the tracks of common mammals in Alberta. This book contains a key to tracks as well as brief descriptions of the animals themselves.	1020 1030	2030 2040	
FAN	*Atlas of Breeding Birds of Alberta.* G.P. Semenchuk. Edmonton, AB: Federation of Alberta Naturalists, 1992. Book.	1020 1070	2040 2070	
SSC	*Benefits of Wildlife, The.* Ottawa, ON: Canadian Wildlife Service, 1990. Booklet.		2020	3020
LLP	*Butterflies of Alberta.* J. Acorn. Lone Pine Publishing, 1993. This guide identifies every butterfly species recorded in Alberta. Through photographs, line drawings and reference lists, butterfly species are described according to distinguishing features, flight periods, geographical ranges, behavior and preferred food plants.	1020	2040	
CBE	*Canoeing.* B. Hans, et al. Calgary, AB: Calgary Board of Education, 1980. Booklet.	1030	2030	
CBE	*Canoe Tripping.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet.	1030	2030	

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Other Resources (continued)

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
ENED	*Caring For the Land Teaching Kit* (Grades 7–9). Edmonton, AB: Alberta Environmental Protection, Education Branch, 1993. Teacher's guide and student material.	1050		
LLP	*Compact Guide to Birds of the Rockies, The.* G. Holroyd and H. Coneybeare. Lone Pine Publishing, 1989. Over 100 birds are described in this compact guide. Full colour illustrations accompany the text, which includes identification hints, similar species, interesting anecdotes and a comprehensive checklist of birds in the mountain parks.	1010 1020 1030	2030 2040	
LLP	*Compact Guide to Wildflowers of the Rockies.* C.D. Bush. Lone Pine Publishing, 1990. This guide to 100 common and interesting wildflowers includes species descriptions, watercolour illustrations, line drawings and keys. Organized by habitat, this compact guide contains a glossary as well.	1010 1020 1030	2030 2040	
UBCP	*Dictionary of Natural Resource Management.* J. Dunster. UBC Press, 1996. This dictionary provides an up-to-date and comprehensive source of natural resource management terms. It includes more than 6000 entries, extensively cross-referenced and illustrated to provide exact meanings. Encourages terminology from a wide range of disciplines and is based on information obtained from discussions with experts around the world. A useful resource for those involved in managing the planet's natural resources.	1010 1050	2020 2090	3020 3040 3050 3090
INEE	*Earth Keepers: Four Keys for Helping Young People Live in Harmony With the Earth.* Van Matre/Johnson. Calgary, AB: The Institute for Earth Education, 1987. Book.	1030 1050	2020 2030	3020
INEE	*Earthwalks: Acclimatization Walks for a Sensory Encounter with the Natural World (Earthwalks: Earth Magic and Snow Walks).* K. Hoesse. Calgary, AB: The Institute for Earth Education, 1980. Book. A collection of natural awareness activities which can be used as the components of a nature awareness walk.	1030 1050	2020 2030	3020
SSC	*Endangered Species in Canada.* Ottawa, ON: Canadian Wildlife Service, 1990. Brochure.		2040 2060 2090	3090

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Other Resources (continued)

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
EPPC	*Feather Care's Volunteer Guide.* Alberta Government Telephones. Edmonton, AB: Alberta Environmental Protection. Booklet.			3020
SSC	*Federal Policy on Wetland Conservation, The.* Ottawa, ON: Environment Canada, 1991. Booklet.		2040 2060	3050 3060
LRDC	*Fifty More Things You Can Do To Save The Earth.* Earthworks Group. Berkeley, California: Andrews and McMeel, 1989.	1050		
CBE	*Fires & Stoves.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet.	1030	2030	
UAP	*Fishes of Alberta, The.* J.S. Nelson, et al. Edmonton, AB: University of Alberta Press, 1992. Book.	1020 1080	2040	
ENED	*Focus On Series (Acidic Deposition, Air Quality, Environment, Greenhouse Effect, Land Reclamation, Ozone Depletion, Pesticides, Pollution, Recycling, Water Conservation).* Edmonton, AB: Alberta Environmental Protection, Education Branch. Booklets.	1050	2090	3020 3090
EPPC	*Framework for Alberta's Special Places, A (Natural Regions Report No. 1).* Edmonton, AB: Alberta Parks Service. Booklet.		2040 2090	3020 3090
CBE	*Freshwater Ecosystems.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1992. Booklet.	1020 1030	2030 2040	
PBC	*Green Future: How To Make A World of Difference.* Lorraine Johnson. Markham, ON: Penguin Books, 1990. Textbook.		2090	3020 3090
ACC	*Green Guide, The (Series I and II).* Edmonton, AB: ACCESS: The Education Station, 1991. Videos.		2060 2090	3020 3090
UAP	*Guide to the Amphibians and Reptiles of Alberta, A.* A.P. Russel, et al. Edmonton, AB: University of Alberta Press, 1993. Book.	1020	2040	

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Other Resources (continued)

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
ENED	*Guide to the Common Native Trees and Shrubs of Alberta.* W. Inkpen and R. Van Eyk. Alberta Environmental Protection, Education Branch. A guide designed to assist in the identification of the 29 most common woody plants found in Alberta. A minimal number of technical terms are used, and an illustrated glossary has been included to explain the botanical terms used. To aid identification, a written description of each tree and shrub is provided along with photographs and an illustrated line key based on leaf characteristics.	1010 1020 1030	2030	
SSC	*Hinterland Who's Who (Series).* Ottawa, ON: Canadian Wildlife Service. Monographs.	1020 1070	2040 2070	
OCV	*How Green Is Your School?* Don E. McAllister. Ottawa, ON: Ocean Voice, 1991. Booklet.	1050	2090	3020 3090
CBE	*Human Environments.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1993. Teacher Resource Manual.	1030	2030 2060	
ENED	*Identification Guide to Alberta Aquatic Plants, An.* G.R. Burland. Alberta Environmental Protection Pesticide Management Branch, 1994. This guide provides a simplified means of identifying aquatic plants. Consists of photographs and narrative descriptions of some of the common aquatic plants found in Alberta. Descriptions refer to easily distinguishable characteristics that permit identification to at least the genus level. A glossary is provided so as to avoid difficulty with unfamiliar terms used in the description. Photographs show plants in a natural setting as would be viewed from a boat or from the shore.	1010 1020 1080	2040	
CBE	*Kananaskis Country Environmental Education Teaching Activity Guide: Earth Science.* R. Lengsfeld, et al. Calgary, AB: Calgary Board of Education, 1987. Guidebook.	1030	2030	
ENED	*Land Conservation Education Program.* Edmonton, AB: Alberta Environmental Protection, Education Branch. Teacher's guide and student materials.	1050	2060 2090 3020 3090	
FHW	*Mammals of the Northern Rockies.* Tom J. Ulrich. Missoula, MT: Mountain Press Publishing Company, 1990. Book.	1020	2040	

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Other Resources (continued)

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
LLP	*Mosses Lichens & Ferns of Northwest North America: A Photographic Field Guide.* D. Witt. Lone Pine Publishing, 1988. Over 370 species of mosses, lichens, ferns and liverworts are fully described. The guide provides illustrations, sytematic keys and notes on habitat, range and similar species.	1020 1030	2030 2040	
EPPC	*Natural Regions of Alberta: Poster Series.* Edmonton, AB: Alberta Environmental Protection, 1990. Posters and manual.	1010 1020	2040	
ENCA	*Environmental Citzenship Series: Nature of Canada, The: A Primer on Spaces and Species.* Ottawa, ON: Environment Canada, 1993. Booklet. This resource is designed to provide information that will help Canadians make environmentally responsible decisions. It provides short information anecdotes, maps and charts, and questions and answers designed to promote critical thinking. The resource includes activities that can be initiated in the classroom or community. The book is one of a series of Environmental Citizenship Primers.	1010 1050 1070	2060 2070 2090	3050 3060 3090
ENCA	*Environmental Citizenship Series: A Primer on Environmental Citizenship.* . Ottawa, ON: Environment Canada, 1993. Booklet. This resource is designed to provide information that will help Canadians make environmentally responsible decisions. It provides short informational anecdotes, maps and charts, and questions/answers designed to provide critical thinking. The resource includes information on ecological processes, relationships of human societies with the environment, and key environmental issues that Canadians face today. The book is one of a series of Environmental Citizenship Primers.	1050	2020 2060	3020
CBE	*Navigation.* Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet.	1030	2030	
EBF	*Nest Boxes For Alberta Birds.* Bryan Shantz, et al. Red Deer, AB: Ellis Bird Farm Ltd., 1984. Booklet.	1020 1050		
CBE	*Nutrition.* N. Kelba, et al. Calgary, AB: Calgary Board of Education, 1983. Booklet.	1020	2030	
SSC	*Planting Trees For Wildlife.* Ottawa, ON: Prairie Farm Rehabilitation Administration, Agriculture Canada. Booklet.	1050	2040 2060	3020

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Other Resources (continued)

Distributor Code	Other Resources	Levels/Module No.		
		1	2	3
INEE	*Sunship Earth: An Acclimatization Program for Outdoor Learning.* Steve Van Matre. Calgary, AB: The Institute for Earth Education, 1979. Book.	1030 1050	2020 2030	3020
LLP	*Trees and Shrubs of Alberta: A Habitat Field Guide.* K. Wilkinson. Lone Pine Publishing, 1990. Clear, concise, non-technical descriptions of Albeta's native and natural trees and shrubs are combined with 180 full-colour photos and line drawings. Includes habitat keys and distribution maps.	1010 1020 1030	2030	
ENED	*Water In Alberta: The Living Flow.* Edmonton, AB: Alberta Environmental Protection, Education Branch, 1993. Teacher's Resource Kit.		2040 2090	3040 3090
ENED	*Water Quality Questions: The Nature and Importance of Water Quality Variables in Alberta.* Edmonton, AB: Alberta Environmental Protection, Education Branch, 1990. Teacher Guide and Student Booklet.	1050	2060 2090	3020 3090
SSC	*Wetlands.* Ottawa, ON: Canadian Wildlife Service, Environment Canada, 1989. Pamphlet.	1050	2090	3050 3060 3090
SSC	*What We Can Do For Our Environment: Hundreds of Things To Do Now.* (4th edition.) Hull, PQ: Environment Canada, Minister of Supply and Services, 1991. Booklet.	1050	2090	3020 3090
EPPC	*Working With Wildlife – A Volunteer's Directory.* Carla Palaschuk. Edmonton, AB: Alberta Environmental Protection. Booklet.			3020

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ADDITIONAL SOURCES

Available to Career and Technology Studies (CTS) teachers, locally and provincially, are many sources of information that can be used to enhance CTS. These sources are available through the community (e.g., libraries, boards, committees, clubs, associations) and through government agencies, resource centres and organizations. Some sources, e.g., government departments, undergo frequent name and/or telephone number changes. Please consult your telephone directory or an appropriate government directory.

The following is a partial list of sources to consider:

TEACHER–LIBRARIANS

Planned and purposeful use of library resources helps students grow in their ability to gather, process and share information. Research activities require access to an adequate quantity and variety of appropriate, up-to-date print and nonprint resources from the school library, other libraries, the community and additional sources. Some techniques to consider are:

- planning together
- establishing specific objectives
- integrating research skills into planning.

Cooperation between the teacher-librarian and the subject area teacher in the development of effectively planned resource-based research activities ensures that students are taught the research skills as well as the subject content. Also see *Focus on Research: A Guide to Developing Student's Research Skills* referenced in the Alberta Education resources section.

ALBERTA EDUCATION SOURCES

Alberta Government telephone numbers can be reached toll free from outside Edmonton by dialing 310–0000.

The following monographs are available for purchase from the Learning Resources Distributing Centre. Refer to the Distributor Directory at the end of this section for address, telephone, fax and Internet address.

Please consult the "Support Documents" section or the "Legal, Service and Information Publications" section in the LRDC *Buyers Guide* for ordering information and costs.

Developmental Framework Documents

- *The Emerging Student: Relationships Among the Cognitive, Social and Physical Domains of Development,* 1991 (Stock No. 161555)

  This document examines the child, or student, as a productive learner, integrating all the domains of development: cognitive, social and physical. It emphasizes the need for providing balanced curriculum and instruction.

- *Students' Interactions Developmental Framework: The Social Sphere,* 1988 (Stock No. 161399)

  This document examines children's perceptual, structural and motor development and how such physical development affects certain learning processes.

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- *Students' Physical Growth: Developmental Framework Physical Dimension,* 1988 (Stock No. 161414)

  This document examines children's normal physical growth in three areas: perceptual, structural and motor development. In none of these areas is the child's growth in a single continuous curve throughout the first two decades of life. Physical growth is characterized by periods of rapid growth and periods of slower growth. Consequently, differences and changes in growth patterns may affect the timing of certain learning processes.

Other

- *Focus on Research: A Guide to Developing Students' Research Skills,* 1990 (Stock No. 161802)

  This document outlines a resource-based research model that helps students manage information effectively and efficiently, and gain skills that are transferable to school and work situations. This model provides a developmental approach to teaching students how to do research.

- *Teaching Thinking: Enhancing Learning,* 1990 (Stock No. 161521)

  Principles and guidelines for cultivating thinking, ECS to Grade 12, have been developed in this resource. It offers a definition of thinking, describes nine basic principles on which the suggested practices are based, and discusses possible procedures for implementation in schools and classrooms.

ACCESS: The Education Station

ACCESS: The Education Station offers a variety of resources and services to teachers. For a nominal dubbing and tape fee, teachers may have ACCESS: The Education Station audio and video library tapes copied. ACCESS: The Education Station publishes listings of audio and video cassettes as well as a comprehensive programming schedule.

Of particular interest are the CTS videos, which are available with utilization guides. The guides outline key points in each video and suggest questions for discussion, classroom projects and other activities. Video topics are listed in the Support Learning Resources section of this guide. The videos and accompanying support material can be obtained from ACCESS: The Education Station. Refer to the Distributor Directory at the end of this section for address, telephone, fax and Internet address.

GOVERNMENT SOURCES

National Film Board of Canada (NFB)

The NFB has numerous films and videotapes that may be suitable for Career and Technology Studies strands. For a list of NFB films and videotapes indexed by title, subject and director, or for purchase of NFB films and videotapes, call 1–800–267–7710 (toll free) or Internet address: http://www.nfb.ca

ACCESS: The Education Station and some school boards have acquired duplication rights to some NFB videotapes. Please contact ACCESS: The Education Station or consult the relevant catalogues in your school or school district.

The Edmonton Public Library and the Calgary Public Library have a selection of NFB films and videotapes that can be borrowed free of charge with a Public Library borrower's card. For further information, contact:

Edmonton Public Library
Telephone: 403–496–7000

Calgary Public Library
Telephone: 403–260–2650

For further information contact:

Statistics Canada
Regional Office
8th Floor, Park Square
10001 Bellamy Hill
Edmonton, AB T5J 3B6
Telephone: 403–495–3027
Fax: 403–495–5318
Internet address: http://www.statcan.ca

Statistics Canada produces periodicals, reports, and an annual year book.

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Resource Centres

Urban Resource Centres

Instructional Services
Elk Island Public Schools
2001 Sherwood Drive
Sherwood Park, AB T8A 3W7
Telephone: 403–464–8235
Fax: 403–464-8033
Internet Address: http://ei.educ.ab.ca

Learning Resources Centre
Red Deer Public School Board
4747 – 53 Street
Red Deer, AB T4N 2E6
Telephone: 403–343–8896
Fax: 403–347–8190

Instructional Materials Centre
Calgary Separate School Board
6220 Lakeview Drive SW
Calgary, AB T3E 5T1
Telephone: 403–298–1679
Fax: 403–249–3054

School, Student, Parent Services Unit
Program and Professional Support Services Sub Unit
Calgary Board of Education
3610 – 9 Street SE
Calgary, AB T2G 3C5
Telephone: 403–294–8542
Fax: 403–287–9739

After July 1, 1997, please contact the School, Student, Parent Services Unit regarding the relocation of the Loan Pool Resource Unit.

Learning Resources
Edmonton Public School Board
Centre for Education
One Kingsway Avenue
Edmonton, AB T5H 4G9
Telephone: 403–429–8387
Fax: 403–429–0625

Instructional Materials Centre
Medicine Hat School District No. 76
601 – 1 Avenue SW
Medicine Hat, AB T1A 4Y7
Telephone: 403–528–6719
Fax: 403–529–5339

Resource Centre
Edmonton Catholic Schools
St. Anthony's Teacher Centre
10425 – 84 Avenue
Edmonton, AB T6E 2H3
Telephone: 403–439–7356
Fax: 403–433–0181

Instructional Media Centre
Northern Lights School Division No. 69
Bonnyville Centralized High School
4908 – 49 Avenue
Bonnyville, AB T9N 2J7
Telephone: 403–826–3366
Fax: 403–826–2959

Regional Resource Centres

Zone 1

Zone One Regional Resource Centre
P.O. Box 6536
10020 – 101 Street
Peace River, AB T8S 1S3
Telephone: 403–624–3187
Fax: 403–624–5941

Zone 2/3

Central Alberta Media Services (CAMS)
182 Sioux Road
Sherwood Park, AB T8A 3X5
Telephone: 403–464–5540
Fax: 403–449–5326

Zone 4

Information and Development Services
Parkland Regional Library
5404 – 56 Avenue
Lacombe, AB T4L 1G1
Telephone: 403–782–3850
Fax: 403–782–4650
Internet Address: http://rtt.ab.ca.rtt/prl/prl.htm

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Zone 5

South Central Alberta Resource Centre (SCARC)
Golden Hills Regional Division
435A Hwy 1
Westmount School
Strathmore, AB T0J 3H0
Telephone: 403–934–5028
Fax: 403–934–5125

Zone 6

Southern Alberta Learning Resource Centre (SALRC)
Provincial Government Administration Building
909 Third Avenue North, Room No. 120
Box 845
Lethbridge, AB T1J 3Z8
Telephone: 403–320–7807
Fax: 403–320–7817

OTHER GOVERNMENT SOURCES

Alberta Advanced Education and Career Development
Information Development and Marketing
8th Floor, City Centre Building
10155 – 102 Street
Edmonton, AB T5J 4L5
Telephone: 403–422–1794
Fax: 403–422–5319
E-mail: careerinfo@aecd.gov.ab.ca

Alberta Careers Beyond 2000
Alberta Careers Beyond 2000: Industry Sector Profiles
Alberta Careers Beyond 2000: Occupational Profiles.

Videos on career planning and entrepreneurial topics are available through the library of this department. Call 403–422–4752 for more information. The following videos are representative of the library's holdings:

The Entrepreneur
Get a Job
A Head for Business
The Seven Phases of a Job Interview.

Alberta Environmental Protection

Website: www.gov.ab.ca/~env/index.hmtl

Strategic and Regional Support
Education Branch
(handles inquiries formerly directed to the Environmental Council of Alberta)
11th Floor, South Petroleum Plaza
9915 – 108 Street
Edmonton, AB T5K 2G8
Telephone: 403–427–6310
Fax: 403–422–5136
E-mail: envedu@env.gov.ab.ca

Land Conservation Education Program
Pesticide Education Program
The Water Literacy Program
Focus On Series
Poster Education Series

Workshops and presentations on these program materials can be arranged.

Communications Division
9th Floor, Petroleum Plaza, South Tower
9915 – 108 Street
Edmonton, Alberta T5K 2G8
Telephone: 403–427–8636
Fax: 403–422–6339

EP LINK (a newsletter about projects, programs and activities undertaken by Alberta Environmental Protection staff)

Land and Forest Services
9920 – 108 Street
10th Floor, Bramalea Building
Edmonton, AB T5K 2M4
Telephone: 403–427–8474
Fax: 403–427–0292

Junior Forest Wardens Program

Natural Resources Service
(handles inquiries formerly directed to Fish and Wildlife Services)
Information Centre
9920 – 108 Street
Edmonton, AB T5K 2M4
Telephone: 403–944–0313

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Edmonton District Fish and Wildlife Office
(handles inquiries regarding all Conservation Education Programs)
14515 – 122 Avenue
Edmonton, AB T5L 2W4
Telephone: 403–422–2605
Fax: 403–427–5695

Project Wild
Alberta Conservation and Hunter Education Program
Alberta Fishing Education Program

Provincial Film Library
(handles the booking and distribution of Conservation Education films and videos)
2nd Floor, 11510 Kingsway Avenue
Edmonton, AB T5G 2Y5
Telephone: 403–427–4381
Fax: 403–452–0668

Recreation and Protected Areas Division
(handles inquiries formerly directed to Alberta Parks)
2nd Floor Oxbridge Place
9820–106 Street
Edmonton, AB T5K 2J6
Telephone: 403–427–6781
Fax: 403–427–5980

Alberta Justice
Chief Provincial Firearms Office
Ground Floor, 10365 – 97 Street
Edmonton, AB T5J 3W5
Telephone: 403–427–0437
Fax: 403–427–1100

Canadian Firearms Safety Course.

Canadian Heritage, Parks Canada
(handles inquiries formerly directed to Parks Canada)

Website (for Canada's Environmental Report):
http://199.212.18.12/folio.pgi/soe

Telephone: 1–800–748–7275
E-mail: natlparks-ab@pch.gc.ca

Calgary Office:
552, 220 – 4th Avenue SE
Calgary, AB T2G 4X3

Edmonton Office:
220 Canada Place
9700 Jasper Avenue
Edmonton, AB T5J 4C3

Environment Canada

Action 21
27th Floor, #10 Wellington Street
Hull, PQ K1A 0H3
Telephone: 1–800–668–6767

Environmental Citizenship Series:
A Primer on Environmental Citizenship
The Nature of Canada: A Primer on Spaces and Species
A Primer on Climate Change
A Primer on Water

Communications Division
Environmental Conservation Branch
Western & Northern Region
(handles inquiries formerly directed to the Canadian Wildlife Service)
200, 4999 – 98 Avenue
Edmonton, AB T6B 2X3
Telephone: 403–951–8720
Fax: 403–495–2615

Inquiry Centre
351 St. Joseph Blvd.
Hull, PQ K1A 0H3
Telephone: 819–997–2800
Fax: 613–953–2225

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Natural Resources Canada

Website: www.nrcan.gc.ca

Canadian Forestry Service
(handles inquiries formerly directed to Forestry Canada & Northern Forestry Research Centre)

Websites: www.nrcan.gc.ca/cfs
www.nofc.forestry.ca

5320 – 122 Street
Edmonton, Alberta T6H 3S5
Telephone: 403–435–7210
Fax: 403–435–7359
E-mail: @nofc.forestry.ca

Distribution Section
Communications NRCan
580 Booth Street, 20th Floor
Ottawa, ON K1A 0E4
Telephone: 616–992–0759 / 616–995–6783
Fax: 616–996–9094

(A *Publications List* is available upon request.)

PROFESSIONAL ASSOCIATIONS

ATEC
12th Floor, Sterling Place
9940 – 106 Street
Edmonton, AB T5K 2N2
Telephone: 403–422–0781
Fax: 403–422–3430
Internet: http://www.ATEC.ca

- Resources previously available through ATEC may now be available from Training Resource Centre, Grant MacEwan Community College. Refer to the Distributor Directory at the end of this section for address, telephone, fax and Internet address.

Occupational Standards for:
Freshwater Angling Guide
Outdoor Guide
Hunting Guide

Alberta Registered Professional Foresters Association

Website: www. nofc.forestry.ca/arpfa

5320 – 122 Street
Edmonton, AB T6H 3S5
Telephone: 403–432–1177
Fax: 403–432–7046
E-mail: arpfa@nofc.forestry.ca

Alberta Society of Professional Biologists

Website: www. ccinet.ab.ca/aspb

#2 – 9804 – 47th Avenue
Edmonton, AB T6E 5P3
Telephone: 403–434–5765
Fax: 403–435–7503
E-mail: aspb@ccinet.ab.ca

Alberta Teachers' Association

Website: www.teachers.ab.ca

Barnett House
11010 – 142 Street
Edmonton, AB T5N 2R1
Telephone: 1–800–232–7208
403–453–2411
Fax: 403–455–6481

CTS Council
Environmental and Outdoor Education Council
Alberta Global Education Project
Science Council

Alberta Veterinary Medical Association
100, 8615 – 149 Street
Edmonton, AB T5R 1B3
Telephone: 403–489–5007
Fax: 403–484–8311

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OFF CAMPUS FACILITIES

The following is a partial list of facilities that provide hands-on experience for student in aspects of resource management and environmental education. Contact should be made directly with the facility to obtain details of what is offered to school groups or students.

Bennett Environmental Education Centre

Website:
www. epsb.edmonton.ab.ca/services/bennettc

Edmonton Public Schools
9703 – 94 Street
Edmonton, AB T6C 3W1
Contact: Sandy Wright
Telephone: 403–468–1439
1–800–664–6630
Fax: 403–466–3370
E-mail: bennettc@epsb.edmonton.ab.ca

Environmental Training Centre
(formerly the Forest Technology School)

Website: www.gov.ab.ca/env/cms/hrd/etc/etc.html

Alberta Forest Service Museum
1176 Switzer Drive
Hinton, AB T7V 1V3
Telephone: 403–865–8200
Fax: 403–865–8266
E-mail: envtrain@env.gov.ab.ca

Cache Percotte Environmental Training Centre
1176 Switzer Drive
Hinton, AB T7V 1V3
Telephone: 403–865–8234 (information)
Telephone: 403–865–8200 (bookings)

Provides programs that develop awareness, appreciation, respect and responsible use of the natural environment as well as outdoor recreation skills. Through partnerships with the Alberta Forest Products Association, the centre also provides programs on responsible forest management practices in Alberta.

Calgary Zoo

Website: www.calagaryzoo.ab.ca

Botanical Gardens and Prehistoric Park
P.O. Box 3036, Station "B"
Calgary, AB T2M 4R8
Telephone: 403–232–9386 (program bookings)
E-mail: through website

Devonian Botanic Garden

Website:
www.discoveredmonton.com/devonian

University of Alberta
Edmonton, AB T6G 2E1
Telephone: 403–987–3054
Fax: 403–987–4141

Environmental Resource Centre

Website: www.dc.ab.ca

10511 Saskatchewan Drive
Edmonton, AB T6E 4S1
Telephone: 403–433–8711
Fax: 403–439–5081
E-mail: dc@ccinet.ab.ca

Glenbow Museum

Website: lexicom.ab.ca/~glenbow

130 – 9 Avenue SE
Calgary, AB T2G 0P3
Telephone: 403–264–8300
Fax: 403–265–9769
E-mail: glenbow@lexicom.ab.ca

Head-Smashed-In Buffalo Jump
Box 1977
Fort Macleod, AB T0L 0Z0
Telephone: 403–553–2731 (Interpretive Centre)
403–265–0048 (Calgary direct)
Fax: 403–553–3141
E-mail: ken carson@hs_smg_edm@culture

John Janzen Nature Centre
P.O. Box 2359
Edmonton, AB T5J 2R7
Telephone: 403–496–2925
Fax: 403–496–4701

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Kananaskis Field Station

Website: www.ucalgary.ca/~biology/kananaskis

Coordinator of School Programs
Bio Sciences 186
University of Calgary
2500 University Drive NW
Calgary, AB T2N 1N4
Telephone: 403–220–5355
Fax: 403–673–3671
E-mail: mmappin@acs.ucalgary.ca

Provincial Museum of Alberta

Website: www.pma.edmonton.ab.ca

12845 – 102 Avenue
Edmonton, Alberta T5N 0M6
Telephone: 403–453–9131
Fax: 403–422–5681

Royal Tyrell Museum of Palaeontology

Website: http://tyrrell.magtech.ab.ca

Box 7500
Drumheller, AB T0J 0Y0
Telephone: 403–823–7707
Fax: 403–823–7131
E-mail: rtmp@dns.magtech.ab.ca

CONSERVATION EDUCATION CAMPS

Alford Lake Conservation Education Centre
Box 369
Caroline, AB T0M 0M0
Telephone: 403–722–2423
Fax: 403–722–2423

Crowsnest Portable Camp
1440 – 17A Street SE
Calgary, AB T2G 4T9
Telephone: 403–297–2838
Fax: 403–297–2839

Narrow Lake Conservation Education Centre
14515 – 122 Avenue
Edmonton, Alberta T5L 2W4
Telephone: 403–422–2606
Fax: 403–427–5695

FISH HATCHERIES / BROOD STATIONS

Cold Lake Fish Hatchery
Box 8159
Cold Lake, AB T0A 0V0
Telephone: 403–639–4087
Fax: 403–639–3598

Raven Brood Trout Station
Box 160
Caroline, AB T0M 0M0
Telephone: 403–722–2180
Fax: 403–722–3784

Sam Livingston Fish Hatcheries
1440 – 17A Street SE
Calgary, AB T2G 4T9
Telephone: 403–297–6561

OTHER AGENCIES

Alberta Forestry Association
101, 10526 Jasper Avenue
Edmonton, AB T5J 1Z7
Telephone: 403–428–7582
Fax: 403–428–7557

Forest Resources Directory
Alberta's Focus on Forests

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Alberta Safety Council
201, 10526 Jasper Avenue
Edmonton, AB T5J 1Z7
Telephone: 403–428–7555
1–800–301–6407
Fax: 403–428–7557

Provides a range of occupational health and safety training programs endorsed by industry partners.

Alberta Science and Technology Hotline

Website: www.cadvision.com/calg_sci_net

Peace River Hotline, Northwest Alberta
Telephone: 403–539–9847
Fax: 403–539–0522

Northeast Alberta, including Edmonton and Red Deer Regions:
Telephone: 403–448–0055
Fax: 403–453–2711

Calgary Region
Telephone: 403–263–6226
Fax: 403–230–8488
E-mail: scihot@cadvision.com

Praxis Hotline, Medicine Hat Region
Telephone: 403–526–4237

The *Alberta Science and Technology Hotline* provides teachers with a direct line to the science community to access information and expertise.

Alberta Wilderness Association
PO Box 6398, Stn. D
Calgary, AB T2P 2E1
Telephone: 403–283–2025
Fax; 403–270–2743
E-mail: awa@web.net

Canadian Forestry Association
185 Somerset Street West, Suite 203
Ottawa, ON K2P 0J2
Telephone: 613–232–1815
Fax: 613–232–4210

National Forest Education Resources Catalogue

Canadian Nature Federation

Website: www.web.net/~cnf

1 Nicholas Street, Suite 520
Ottawa, ON K1N 7B7
Telephone: 613–562–3447
Fax: 613–562–3371
E-mail: cnf@web.net

Canadian Parks and Wilderness Society

Website: www.afternet.com/~tnr/cpaws/cpaws.html

401 Richmond St W
Toronto, ON M5V 3A8
Telephone: 416–972–2720
Fax: 416–979–3155
E-mail: cpaws@web.net

Canadian Wildlife Federation

Website: www.toucan.net/cwf-fcf/cwfhome.html

2740 Queensview Dr
Ottawa, ON K2B 1A2
Telephone: 613–721–2286
1–800–563–9453
Fax: 613–721–2902
E-mail: info@cwf-fcf.org

Ducks Unlimited Canada

Website: www.ducks.ca

PO Box 1160
Oak Hammock Marsh
Stonewall, MB R0C 2Z0
Telephone: 204–467–3000
1–800–665–3825
Fax: 204–467–9025
E-mail: through website

Alberta Office:
202 – 10470 – 176 Street
Edmonton, AB T5S 1L3
Telephone: 403–489–2002
Fax: 403–489–1856

In addition of providing a range of relevant print material, Ducks Unlimited offers the public an extensive video/film library.

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FEESA

Website: www.telusplanet.net/public/feesa

900, 10150 – 100 Street
Edmonton, AB T5J 0P6
Telephone: 403–421–1497
Fax: 403–425–4506
E-mail: feesa@telusplanet.net

FEESA offers education training and resource materials focusing on a variety of environmental and educational needs. Programs are developed in partnership with business, industry, government, environmental and education groups.

Green Teacher

Website: www.web.ca/~greentea/

95 Robert Street
Toronto, ON M5S 2K5
Telephone: 416–960–1244
Fax: 416–925–3474
E-mail: greentea@web.net

A magazine by and for educators to enhance environmental and global education across the curriculum.

The Pembina Institute for Appropriate Development

Website: www.dvnet.drayton-valley.ab.ca/environ.pembina.htm

P.O. Box 7558
Drayton Valley, AB T7A 1S7
Telephone: 403–542–6272
Fax: 403–542–6464
E-mail: piad@ccinet.ab.ca

The Canadian Environmental Education Catalogue

Recycle Infoline
(handles inquires previously directed to the Alberta Special Waste Management Corporation)
12th floor South Petroleum Plaza
9915 – 108 Street
Edmonton, AB T5K 2G8
Telephone: 1–800–463–6326
Fax: 403–427–0413

Provides information regarding environmental and hazardous wastes.

Red Cross Society

Website: www.redcross.ca

737 – 13 Avenue SW
Calgary, AB T2R 1J1
Telephone: 403–541–4445
Fax: 403–541–4428

Emergency First Aid
Standard First Aid
Basic Rescuer CPR

The Science Alberta Foundation

Website: under construction

2100, 700 – 6th Avenue SW
Calgary, AB T2P 0T8
Telephone: 403–260–1996
Fax: 403–260–1165
E-mail: litebulb@supernet.ab.ca

The Science Alberta Foundation promotes science literacy throughout the province. Their programs are hands-on, and include travelling exhibitions and professional development courses.

The SEEDS Foundation
440, 10169 – 104 Street
Edmonton, AB T5J 1A5
Telephone: 403–424–0971
Fax: 403–424–2444

St. John Ambulance
Provincial Headquarters
10975 – 124 Street
Edmonton, AB T5M 0H9
Telephone: 403–452–6565
Fax: 403–452–2835

Emergency First Aid
Standard First Aid
Basic Rescuer CPR
First Aid in the Wilderness

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W.I.S.E. Foundation
1440 – 17A Street SE
Calgary, AB T2G 4T9
Telephone: 403–297–2838

World Wildlife Fund Canada
Website: www.wwfcanada.org
#504, 90 Eglinton Avenue E
Toronto, ON M4P 2Z7
Telephone: 416–489–8800
1–800–267–2632
Fax: 416–489–3611 (or 8055)
E-mail: panda@wwfcanada.org

ADDITIONAL WEBSITES OF NOTE

AgrEvo Canada
http://www.hcc.com/agrevo

Canadian Biodiversity Information Network
http://www.doe.ca/ecs/biodiv/biociv.html

EcoNet
http://www.igc.apc.org/forest

State of Canada's Forests
http://ncr157.ncr.forestry.ca/sof/sof.html

Western Canada Wilderness Committee
http://www.ccinet.ab.ca/wcwc/

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ACP	Amoco Canada Petroleum Company Ltd. 240 – 4th Avenue SW Calgary, AB T2P 2H8	403–233–1425 Fax: 403–233–1476
DUCK	Ducks Unlimited Canada P.O. Box 1160 Oak Hammock Marsh Stonewall, MB R0C 2Z0	1–800–665–3825 Fax: 204–467–9025
ENCA	Environment Canada Terrasses de la Chaudiere 27th Floor, 10 Wellington Street Hull, Quebec K1A 0H3	819–953–1595 Fax: 819–994–1412 1–800–668–6767
FEESA	FEESA, An Environmental Education Society #900, 10150 – 100 Street Edmonton, AB T5J 0P6	403–421–1497 Fax: 403–425–4506
KFL	Karvonen Films Ltd. 2001 – 91 Avenue Edmonton, AB T6P 1L1	403–467–7167 Fax: 403–467–7162
LRDC	Learning Resources Distributing Centre 12360 – 142 Street Edmonton, AB T5L 4X9	403–427–5775 Fax: 403–422–9750 http://ednet.edc.gov.ab.ca/lrdc
MLP	Missing Link Productions Ltd. 400, 119 – 14th Street NW Calgary, AB T2N 1Z6	403–283–6201 Fax: 403–283–6214
TRC	Training Resource Centre Grant MacEwan Community College City Centre Campus Room 5–309, 10700 – 104 Avenue Edmonton, AB T5J 4S2	403–497–5475 Fax: 403–497–5677

WILDLIFE

SECTION J: SAMPLE STUDENT LEARNING GUIDES

The following pages provide background information, strategies and a template for developing student learning guides. Also included at the end of this section are several sample student learning guides for Wildlife.

A student learning guide provides information and direction to help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher.

Many excellent student learning guides (SLGs) are available for use and/or are in the process of being developed. While Alberta Education provides a development template accompanied by some samples, most student learning guide development is being done by individuals and organizations across the province (e.g., school jurisdictions, specialist councils, post-secondary organizations). Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 11) for further information regarding student learning guide developers and sources.

Note: A student learning guide is not a self-contained learning package (e.g., Distance Learning Module), such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

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SAMPLE STUDENT LEARNING GUIDES

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WLD2040 Wildlife Spaces & Species J.17
WLD3050 Wildlife Management 1 ..... J.25

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BACKGROUND INFORMATION

A Student Learning Guide (SLG) is a presentation of information and direction that will help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher. A SLG is not a self-contained learning package such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

Each SLG is based on curriculum and assessment standards as defined for a particular CTS module. Curriculum and assessment standards are defined in this document through:

- module and specific learner expectations (Sections D, E and F)
- assessment criteria and conditions (Sections D, E and F)
- assessment tools (Section G).

The SLG is written with the student in mind and makes sense to the student in the context of his or her CTS program. SLGs are designed to guide students through modules under the direction of the teacher. They can be used to guide:

- an entire class
- a small groups of students
- individual students.

In some instances, the Student Learning Guide may also be used as teacher lesson plans. When using SLGs as teacher lesson plans, it should be noted that they tend to be:

- learner-centred (versus teacher-directed)
- activity-based (versus lecture-based)
- resource-based (versus textbook-based).

Components of a Student Learning Guide

The student learning guide format, as developed by Alberta Education, typically has *seven* components as described below.

1. *Why Take This Module?*

   This section provides a brief rationale for the work the student will do, and also establishes a context for learning (i.e., in relation to the strand, a life pursuit, a specific industry, etc.).

2. *What Do You Need To Know Before You Start?*

   In this section, prerequisite knowledge, skills and attitudes considered necessary for success in the module are identified. Prerequisites may include other modules from within the strand or from related CTS strands, as well as generic knowledge and skills (e.g., safety competencies, the ability to measure/write/draw, prior knowledge of basic information relevant to the area of study).

3. *What Will You Know And Be Able To Do When You Finish?*

   This information must parallel and reflect the curriculum and assessment standards as defined for the module. You may find it desirable to rewrite these standards in less formal language for student use.

4. *When Should Your Work Be Done?*

   This section provides a timeline that will guide the student in planning their work. The timeline will need to reflect your program and be specific to the assignments you give your students. You may wish to include a time management chart, a list of all assignments to be completed, and instructions to the student regarding the use of a daily planner (i.e., agenda book) to organize their work.

5. *How Will Your Mark For This Module Be Determined?*

   This section will interpret the assessment criteria and conditions, assessment standards, assessment tools and suggested emphasis as defined for the module within the context of the projects/tasks completed. Accepted grading practices will then be used to determine a percentage grade for the module—a mark not less than 50% for successful completion. (**Note**: A module is

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"successfully completed" when the student can demonstrate ALL of the exit-level competencies or MLEs defined for the module.)

6. *Which Resources May You Use?*

   Resources considered appropriate for completing the module and learning activities are identified in this section of the guide. The resources may be available through the Learning Resources Distributing Centre (LRDC) and/or through other agencies. Some SLGs may reference a single resource, while others may reference a range of resources. Resources may include those identified in the Learning Resource Guide (Section I) as well as other sources of information considered appropriate.

7. *Activities/Worksheets*

   This section provides student-centred and activity-based projects and assignments that support the module learner expectations. When appropriately aligned with curriculum and assessment standards, successful completion of the projects and assignments will also indicate successful completion of the module.

Strategies for Developing Student Learning Guides

Prior to commencing the development of a student learning guide, teachers are advised to obtain:

- the relevant Guide to Standards and Implementation
- the student learning guide template.

Information communicated to the student in the SLG must parallel and reflect the curriculum and assessment standards as defined for the module. Therefore, critical elements of the Guide to Standards and Implementation that need to be addressed throughout the SLG include:

- module and specific learner expectations
- assessment criteria and conditions
- assessment standards
- assessment tools.

Additional ideas and activities will need to be incorporated into the student learning guide. These can be obtained by:

- reflecting on projects and assignments you have used in delivering programs in the past
- identifying human and physical resources available within the school and community
- networking and exchanging ideas (including SLGs) with other teachers
- reviewing the range of resources (e.g., print, media, software) identified in the Learning Resource Guide (Section I) for a particular module/strand.

Copyright law must also be adhered to when preparing a SLG. Further information and guidelines regarding copyright law can be obtained by referring to the:

- *Copyright Act*
- *Copyright* and the *Can Copy Agreement*.

A final task in developing a student learning guide involves validating the level of difficulty/ challenge/rigour established, and making adjustments as considered appropriate.

A template for developing student learning guides, also available on the Internet, is provided in this section (see "Student Learning Guide Template," pages J.5–10). Several sample student learning guides are also provided in this section (see "Sample Student Learning Guides," starting on page J.11.

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CAREER & TECHNOLOGY STUDIES

SAMPLE STUDENT LEARNING GUIDE TEMPLATE

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Sample Student Learning Guides
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CTS, Wildlife /J.5
(1997)

WHY TAKE THIS MODULE?

WHAT DO YOU NEED TO KNOW BEFORE YOU START?

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WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

-
-
-
-
-
-
-
-

WHEN SHOULD YOUR WORK BE DONE?

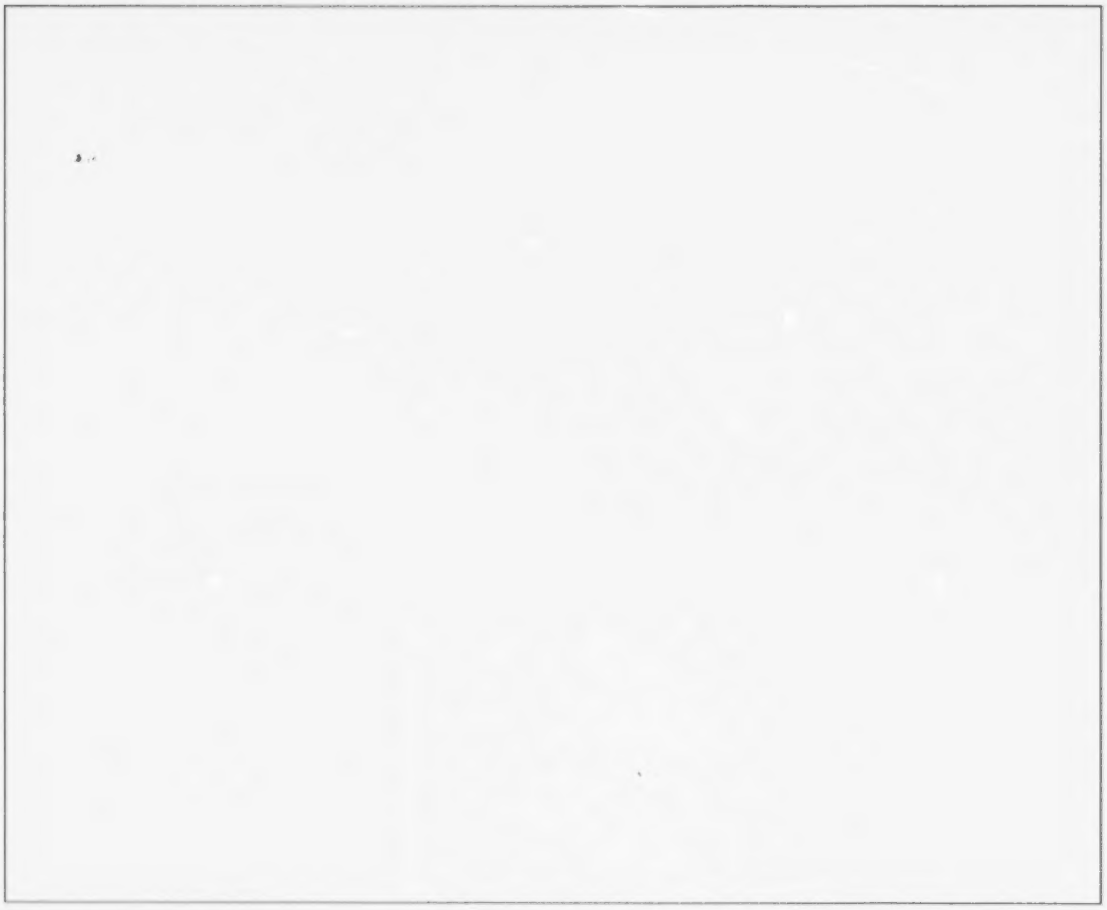
©Alberta Education, Alberta, Canada

HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE

WHICH RESOURCES MAY YOU USE?

-
-
-
-
-
-



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CAREER & TECHNOLOGY STUDIES

WILDLIFE

SAMPLE STUDENT LEARNING GUIDE

WLD1020 Natural History of Wildlife

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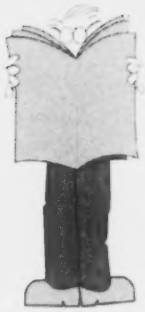
WLD1020 Natural History of Wildlife

WHY TAKE THIS MODULE?



- Alberta contains many diverse and interesting wildlife species. Learn about the biodiversity of wildlife species found in Alberta and Canada, and the varied structures, behaviours and habitats that make them so interesting.
- You will also compare Alberta's wildlife diversity with that in another part of the world.

WHAT DO YOU NEED TO KNOW BEFORE YOU START?

There are no prerequisites identified for this module.

However, you will need to be able to:

- explain terms used in the study of wildlife
- identify the characteristics of major taxonomic groups of wildlife.

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WLD1020 Natural History of Wildlife

WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

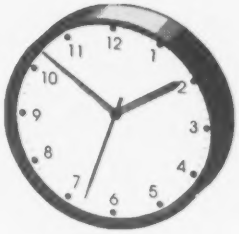
Upon completion of this module you will be able to:

- describe the diversity of Canadian wildlife
- explain the structure, behaviour and habitat of an Alberta wildlife species
- compare and contrast Alberta's wildlife with wildlife in other parts of the world
- demonstrate basic competencies.

WHEN SHOULD YOUR WORK BE DONE?

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.



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WLD1020 Natural History of Wildlife

HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate **all** of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows:	
• Assignment 1	20%
• Assignment 2	50%
• Assignment 3	30%

WHICH RESOURCES MAY YOU USE?

- Status of Fish and Wildlife
- Alberta Conservation and Hunter Education
- Alberta Fishing Education Program
- *Investigating Terrestrial Ecosystems*
- *Proceedings of the Second Endangered Species and Prairie Conservation Workshop*
- *Green Inheritance: The World Wildlife Fund Book of Plants*
- *Singing in the Rainforest* (Missing Link Productions, video)
- "Muted Spring" (*The Globe and Mail*, article)
- *The Fishes of Alberta*, The University of Calgary and the University of Alberta Press
- *Fishes of Alberta*, Government of Alberta
- *Birds of North America: A Guide to Field Identification*
- *A Guide to Amphibians and Reptiles of Alberta*, The University of Calgary and the University of Alberta Press
- *Freshwater Fishes of Canada*, Fisheries Research Board of Canada
- *Wildflowers of the Canadian Rockies*
- *The Atlas of Breeding Birds*
- *Mammals of Alberta* (The Department of Industry and Development)
- *Hoofed Animals of Alberta*
- *The Book of Canadian Fishes*
- "Don't let the voice of spring be silenced" (World Wildlife Fund of Canada, brochure)

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WLD1020 Natural History of Wildlife

ACTIVITIES/WORKSHEETS

Assignment 1: Compile a list of wildlife species found in Alberta. Include the biological and common names and include at least three species from each of the following categories

plants	grasses, ferns, mosses, conifers, flowering
mammals	bats, rodents, ungulates, carnivores
birds	prey, perching, waterfowl, shorebirds, upland game, arctic migrants, grassland
amphibians	no specific category
reptiles	no specific category
fish	native, introduced
insects	no specific category

Assignment 2: Research project on selected wildlife species found in Alberta or Canada. Your written research report will be based on the following criteria

- Description
- Distribution - include a map
- Habitat
- Feeding habits
- Reproduction
- Social organization
- Interactions with other wildlife species
- Interesting adaptations and behaviours
- Why you have interest in this particular species
- Status/Man's impact on the wildlife species
- Current research endeavours
- A bibliography of reference used.

Use all possible types of resources: books, encyclopedias, magazines, resource people, public libraries, government brochures, etc.

Assignment 3: Comparing Diversity

1. a) Graph the following data: the number of species of breeding birds at different latitudes.
   b) Suggest a least three reasons why there is a change in the number of species at different latitudes. Explain your reasons.

2. Read *Investigating Terrestrial Ecosystems,* Chapter 13, pages 268–288. Compare the temperate rainforest biome in British Columbia with the boreal forest biome found in Yellowknife, NWT (and Alberta) and the tropical rainforest biome found in low altitude regions by answering the questions on pages 276, 277, 279 and 285. **Note**: Other comparisons could be done if resources could be found, e.g. compare a plains-type ecosystem like southern Alberta grasslands with the African Plains, or compare the boreal forest in Asia with the boreal forest in Canada.

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WLD1020 Natural History of Wildlife

3. Watch *Singing in the Rainforest*. Explain in at least one page of writing the message the film is trying convey.

4. Read the article "Muted Spring" and the brochure about songbirds by WWF. Create a poster about an Alberta or Canadian songbird that explains the problems the birds are facing and what can be done.

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CAREER & TECHNOLOGY STUDIES

WILDLIFE

SAMPLE STUDENT LEARNING GUIDE

WLD2040 Wildlife Spaces & Species

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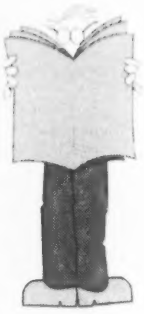
CTS, Wildlife /J.17
(1997)

Wildlife Spaces and Species (WLD204)

WHY TAKE THIS MODULE?



- You will examine representative wildlife spaces and species of Alberta, and investigate global factors which cause the depletion of wildlife species, populations and habitats.
- You will also conduct research on an endangered species or space, and learn about an important local and national strategy to conserve wildlife and its habitat; e.g., the Endangered Spaces Campaign.

WHAT DO YOU NEED TO KNOW BEFORE YOU START?

There are no prerequisites identified for this module.

However, you should be able to:

- describe the geographical regions of Canada
- gather topical information using the library, computer, interview and other media sources
- identify and describe major stages and steps in the research process.

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WLD2040 Wildlife Spaces & Species

WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

Upon completion of this module you will be able to:

- identify and compare representative ecoregions in Alberta and Canada with similar ecoregions in other parts of the world
- identify and describe threatened or endangered wildlife spaces and species in Alberta and Canada
- describe and compare local and global strategies for wildlife protection and habitat management
- demonstrate basic competencies.

WHEN SHOULD YOUR WORK BE DONE?

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.

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WLD2040 Wildlife Spaces & Species

HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate **all** of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows:	
• Assignment #1	20%
• Assignment #2	30%
• Assignment #3	20%
• Assignment #4	30%

WHICH RESOURCES MAY YOU USE?

- *Borealis*. 1993. Vol. 4, No. 1, Issue 13, or Alberta's Endangered Spaces (a supplement publication to *Borealis*. 1993. Vol. 3, No. 4, Issue 12
- *Extinction:* The causes and consequences of the disappearance of a species
- *Endangered Spaces:* The future for Canada's wilderness
- *Borealis*. Canadian Parks and Wilderness Society
- *The Status of Alberta Wildlife*, Alberta Energy/Forestry, Lands and Wildlife
- *Endangered Species*. Environment Canada
- *Working for Wildlife*. World Wildlife Fund of Canada
- *Canadian Endangered Species List*. World Wildlife Fund of Canada

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WLD2040 Wildlife Spaces & Species

ACTIVITIES/WORKSHEETS

Assignment #1: Alberta Spaces and Species

Choose **one** natural region of Alberta that you are not really familiar with. Using the map provided (refer to Appendix), draw a map of Alberta and colour your natural region (and subregions).

Read the section on your chosen natural region. Summarize the status of your chosen natural area in Alberta by answering the following questions:

1. What is the area of your chosen natural region in Alberta? What percentage of Alberta is this?
2. How much of the area remains in a natural state?
3. Define endangered and vulnerable according to the Committee on the Status of Wildlife in Canada (COSEWIC). Put these definitions into your own words.
4. List the endangered and/or vulnerable wildlife species in your chosen natural area.
5. What are the current threats to your natural region? Explain.
6. Read the article "Posterity will Bless Us," pages 15–16. Compose one page of writing summarizing the message the author is trying to convey and your reaction to it.

Assignment #2: How are Spaces and Species Endangered?

You are required to read Chapter 6 (Direct Endangering) and Chapter 7 (Indirect Endangering) and complete the following assignment.

Part A: Chapter 6 Direct Endangering

Read pages 123–154 in *Extinction*. Answer all the following questions.

1. How does the author define overexploitation and what does he use as an example?
2. How does "The Tragedy of the Commons" analogy relate to whaling?
3. List other examples of overexploitation or a marine resource.
4. What is most serious environmental challenge to overexploited marine species? Explain in your own words.
5. Some 12,000 years ago, large mammal species in North America went extinct in a short time. Provide three examples of the type of species that went extinct and explain possible reasons for the extinctions.
6. What are moas and rheas?
7. Where is Mauritius Island and what caused the extinction of the Dodo bird?
8. What are the two major reasons for the extinction of the Woolly Mammoths?
9. What are the Inukshucks?
10. Where did the Passenger Pigeon live and what caused its extinction?
11. Why are great apes in such demand for medical research?
12. Provide a least five examples of illegal trade in wildlife
13. Explain at least three reasons why the Cheetah has an uncertain future?
14. Give three examples of human predation for nonedible products.
15. What is a predator control program? Provide three examples of direct endangering by predator control programs.

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WLD2040 Wildlife Spaces & Species

Part B: Chapter 7 Indirect Endangering

Read pages 155–212 in *Extinction* and answer the following questions:

1. What caused the destruction of corals in Kaneohe Bay, Hawaii and why were the corals not able to survive?
2. How did the introduction of the mosquito decimate native bird populations in Hawaii?
3. What is a serpentine patch?
4. Why are the butterflies Atala Hairstreak in Florida and Karner Blue in New York on the verge of extinction?
5. Describe the complex interactions required for the Large Blue Butterfly which led to its extinction in England.
6. Because of the foundation position of plants in any food chain, it has been estimated that for every one plant species that goes extinct, how many other organisms that depend on the plant species also go extinct?
7. The development and spread of agriculture has always been, and continues to be, a much more serious source of habitat destruction that urbanization. Entire natural ecosystems are converted into stands of one or a few plants and efforts are made to exclude herbivores. Diversity of populations and species is automatically lost, and the plants are usually the first to go. "...Agriculture is a root cause of the extinction of enormous numbers of plant populations and species...." Summarize three examples of how agriculture causes habitat destruction.
8. What is the naive viewpoint about overpopulation often adopted by politicians and developers? What is a more realistic viewpoint?
9. Describe two impacts of water diversion on wildlife near Los Angeles.
10. "It is estimated that the eagle population in the contiguous forty-eight states is less than 1 percent of the population that once lived there." Explain the reasons for this.
11. List all five pollutants humans puts into freshwater systems all over the world.
12. List three ways that mining and development of minerals and energy can have negative effects on habitats and species.
13. List two species in North America that have become endangered by dams.
14. What is the human activity that threatens species worldwide?
15. Why is the species diversity of deciduous forests much greater that coniferous forests?
16. Reforestation of temperate zone forests focuses on conserving area rather than quality. Explain how this has implications for species diversity.
17. What makes tropical rainforests more vulnerable to irreversible damage than temperate forests?
18. What are four major assaults on the tropical rainforests?
19. List five species that are threatened by introduced species.
20. What is one reason introduced species are so successful?
21. List at least three ways that recreation can threaten species.

Assignment #3: Research Project on an Endangered Space or Species

You must design and conduct a research project on an endangered space or species. Instead of the teacher defining the criteria (what must be included in your research project) for you, you will develop your own. The organization and criteria of your research project must be organized into an outline and handed into your teacher for comments and feedback before you begin your project. Be sure to include resources that you plan to use.

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WLD2040 Wildlife Spaces & Species

Assignment #4: The Endangered Spaces Campaign

Part A: Class presentation on The Endangered Spaces Campaign. Your presentation must include the following:

- a visual overview of Alberta's natural areas
- What is the Endangered Spaces Campaign?
- How is Alberta doing?
- What areas in Alberta need protection and why
- What areas in Alberta have adequate protection?
- What is Special Places 2000?
- Existing protected areas of Alberta and proposed areas for protection
- a letter written to the premier of Alberta expressing your concerns about an endangered space(s)/specie(s) in Alberta.

Part B: The Canadian Wilderness Charter. Read and sign the charter. Encourage others to sign the charter. Mail your list of signatures to

The Endangered Spaces Campaign
World Wildlife Fund
Suite 504
90 Eglinton Avenue East
Toronto, Ontario
M4P 2Z7

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CAREER & TECHNOLOGY STUDIES

WILDLIFE

SAMPLE STUDENT LEARNING GUIDE

WLD3050 Wildlife Management 1

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CTS, Wildlife /J.25
(1997)

WLD3050 Wildlife Management 1

WHY TAKE THIS MODULE?

- This module will introduce you to wildlife management and help you understanding its importance. Our spaces and species are threatened by a growing human population and demand for raw materials. With cooperation and wise management, we can protect our wildlife resource.
- Some situations are not easy to resolve to everyone's satisfaction. A complicated situation can be simplified by breaking it down into smaller parts and weighing the pros and cons of each consideration. By developing goals and objectives, a plan can eventually be developed.

WHAT DO YOU NEED TO KNOW BEFORE YOU START?

Prerequisite: WLD3040: Wildlife Research

In addition, to be successful in this module you should be able to:

- gather topical information via library, computer, interview and other media sources
- identify and describe major stages and steps in the research process
- collect baseline and specific data using a variety of information gathering techniques
- analyze, interpret and draw conclusions needed to solve a problem or answer a question.

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WLD3050 Wildlife Management 1

WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

Upon completion of this module you will be able to:

- describe the functions of wildlife management
- identify and explain major components of a wildlife management plan
- describe alternatives and consequences associated with current issues involving wildlife management
- demonstrate basic competencies.

WHEN SHOULD YOUR WORK BE DONE?

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.

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HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate all of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows:	
• Short Answer Quiz	10%
• Final Examination	20%
• Written Report	30%
• Video Review Questions	5%
• Time on Task (participation)	5%
• Class Presentation	30%

WHICH RESOURCES MAY YOU USE?

- *The Importance of Wildlife to Canadians*
- *Prairie Habitat: A Prospectus*
- Alberta Conservation and Hunter Education
- *North American Waterfowl Management Plan*
- *Conservation of Canadian Prairie Grasslands: A Landowner's Guide*
- *A New Leaf*
- Project Wild Activity Guide
- *International Wildlife*
- "Tallgrass Prairie Revival" *(Equinox,* Jan./Feb. 1993)
- *Canadian Geographic*
- Alberta Fishing Education Program
- *Water Management in Alberta*
- *A Wildlife Policy for Canada*
- *The Nature of Canada: A Primer on Spaces and Species*

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WLD3050 Wildlife Management 1

ACTIVITIES/WORKSHEETS

Video Review Questions - *A New Leaf: Real Sustainability for the Boreal Forest*

Part 1: Branching Out

1. What rare or endangered flora and fauna do Alberta's forests have?

2. The economic potential of Alberta's natural resources is tremendous. Name five established or budding industries that could increase job creation and expand renewable resource usage.

Think about it!

Discuss what options or compromises there are for various interest groups who want their share of the northern Alberta forests and wildlife.

Part 2: A Natural Selection

1. The forest is a renewable resource that is sometimes referred to as a sustainable forest resource. What does this mean?

2. What is the percentage of regrowth in clearcut areas after 10 years?

3. Regrowth in some clearcut areas is slow or nonexistent. Name and describe three inhibiting factors that slow down the process of natural reforestation and tree planting programs.

4. Describe the difference between a naturally occurring forest fire and a clearcut.

5. After an area of forest is clearcut, two dramatic things occur along the clearcut edge. Describe what happens in each case and how is the problem currently solved?

6. What is the cut block size recommended by researchers?

7. What are the four detrimental effects of clearcutting?

8. Advocates of selective forestry suggest three different alternatives to clearcut harvesting. Name, describe and illustrate with a diagram the methods involved.

9. Some European countries have initiated monoculture tree stands in tree harvested areas but are experiencing some difficulty with this method of reforestation. How and why does this problem exist?

10. What are alternatives for wood fibre?

Think about it

Is it feasible to think that selective harvesting by horse and small machine is economically and environmentally sound compared with the harvesting and reforestation methods that big logging companies use?

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WLD3050 Wildlife Management 1

Part 3: The Economics of the Boreal Forest

1. What economic advantage do small logging operations have over larger logging operations?

2. What disadvantage do small logging operators have in securing forest harvesting rights as compared to the big multinational companies?

3. How can small industry create more labour-intensive jobs using the forest than bigger industry?

Think about it!

Do you think that Alberta industry can turn more profit, protect the environment and create more jobs by allowing the forest resources to become more multi-usage? If so, how?

Wildlife Management 1: Short Answer Quiz

1. State the Principles of Inversity. (1 mark)

2. Would an abrupt stop to a forest or other vegetative community hold any more animal life than a gradual transition from one vegetative community to the next? Explain. (3 marks)

3. Explain the difference between the concept of species categories extirpated and extinct species. (4 marks)

4. Explain what the carrying capacity of an ecosystem means. (1 mark)

5. Management schemes that deal with big game animals are varied. Name and describe three ways to manipulate the population of a big game animal such as moose during hunting season. (6 marks)

6. Describe two management schemes that could be employed to increase browse habitat for big game animals such as moose or elk. (2 marks)

7. Describe two ways to manipulate habitat and give a positive effect for each that would result from that manipulation. (2 marks)

8. Why does a wildlife inventory take place? (1 mark)

9. A sage grouse population is living in a small portion of southern Alberta. If a scenario such as this were to be played out, what could be three limiting factors to this bird's population? Explain each limiting factor. (6 marks)

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